January 2012

Reciprocity and Development in Disaster-Induced Resettlement in Andean Ecuador

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Reciprocity and Development in Disaster-Induced Resettlement in Andean Ecuador

by

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A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy
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Date of Approval:
October 5, 2012

Keywords: cooperation, political economy, power, agriculture

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ACKNOWLEDGMENTS

This study was made possible by a Doctoral Dissertation Improvement Grant from the National Science Foundation (NSF #1123962) and a Fellowship in Hazards, Risk, and Disasters (PERISHIP), a joint program of The Natural Hazards Center at the University of Colorado and the Public Entity Risk Institute (PERI) with funding from the National Science Foundation. Thank you to Linda Whiteford, not only for serving as my advisor and mentor, but for providing so many opportunities for me to learn and conduct research and to develop as a scholar. I also owe an enormous debt of gratitude to the participants in this study for their insight, their patience and kindness, and their willingness to share their stories and struggles with me.

Thank you to my dissertation committee for all of your patience, encouragement, guidance, and support during this process: Linda Whiteford, Eric Jones, Graham Tobin, Kevin Yelvington, and Becky Zarger. I would also like to thank several others who provided feedback and insight as I developed my ideas for this research: Michael Cernea, Ted Downing, Norm Whitten, Michelle Wribblesman, Rachel Corr, and Rudi Colloredo-Mansfeld.

Thank you especially to Jennifer Syvertsen for your support and invaluable feedback on this project. Thanks also to my classmates and friends, including Carylanna Taylor, Jason Simms, Juan Luque, and Andy Gonzalez. Finally, thank you to my family for loving and supporting me throughout my studies. I would not have survived without you.
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This dissertation addresses gaps in anthropological knowledge about how reciprocity—and a specifically Andean form of reciprocity—works in disaster and resettlement settings. This study looks at the practices of reciprocity in a disaster-affected community (Manzano) and a disaster-induced resettlement (Pusuca) in the Andean highlands of Ecuador. Specifically, it examines two aspects of reciprocal exchange practices in these sites. It first looks at some of the factors that affect the continuity of reciprocal exchange practices, which other studies have found to play a vital role in recovery from disasters and resettlement. It then looks to the roles of unequal power relations in the practices of reciprocity and a particularly Andean form of reciprocity and cooperative labor, the *minga*. The study identifies power-laden dynamics in the practice of reciprocity that tend to be overlooked in studies of social support and mutual aid in disasters and resettlements. I argue that these dynamics are critical to an examination of reciprocity in these contexts because they have important implications for the distribution of relief and development resources.

This study employed an iterative, mixed-method, 3-phase research strategy in the recursive discovery and corroboration of analytical domains and the evaluation of study hypotheses. In the first phase, exploratory observation, key informant interviews, and archival searches identified specific terms, practices, and events in order to design effective structured interview questions. In the second phase, I administered structured interviews to obtain quantitative indicators of reciprocal exchanges between group
members, distribution of development benefits and collective resources, and occupational and socioeconomic data. In the third phase, I conducted focused observation and documentation of participation in decision-making, plus patterns of influence in public negotiations of development strategies and aid allocation.

The expectation of hypothesis 1 was that wage employment and residential distance would be negatively associated with minga participation. The results were mixed between the two sites. In Manzano, wage employment was not significantly associated with records of minga participation, but there was a significant negative correlation with residential distance and minga participation. In Pusuca, there were significant negative correlations with wage employment and residential distance with records of minga participation. The expectation of hypothesis 2 was that household exchange participation would be positively associated with minga participation. Multiple tests of the association between household minga attendance and total household exchange participation found positive associations between these two variables in Manzano, but not in Pusuca.

For hypothesis 3a, the expectation was that total household exchange participation would be positively associated with brokerage and decision-making power and statistical tests found a significant positive correlation between these variables in both sites. The implication is that one way that politically powerful individuals exercise and maintain their power is through forming reciprocal exchange ties. Those with more ties are more likely to act as brokers between their neighbors and scarce aid and development resources and more likely to have their views and agendas supported in local decision-making processes.
Hypothesis 3b tests the assumption that households connected through reciprocal exchange relations to highly connected households access a greater share of relief and development resources than others. Statistical tests indicated a significant positive association between being connected to highly connected households and project benefit inclusion in both sites. This suggests that it is not only the powerful that access scarce extra-local resources, but also their less connected allies, which can be taken as evidence of privileged inclusion as a form of power in both sites.

This study contributes to anthropological knowledge about the political economy of reciprocity in disaster-induced resettlements in two ways. First, it looks more broadly at the range of factors that could influence the continuity or disruption of practices of cooperation and reciprocal exchange in resettlement than other studies, which focuses on the narrow influence of policy practice. In this study, I draw on the economic anthropology of reciprocity and posit a possible role of wider political economic processes—growing integration into the capitalist wage labor economy—as an added explanatory factor for the dissolution of reciprocal exchange relations in post-disaster and resettlement contexts. The second way in which I seek to build upon these studies is by foregrounding the ways in which power relations are bound up in reciprocal exchange relations.
CHAPTER ONE: INTRODUCTION

This dissertation addresses gaps in anthropological knowledge about how reciprocity—and specifically Andean forms of reciprocity—works in disaster and resettlement settings. This study examines the practices of reciprocity in a disaster-affected community and a disaster-induced resettlement in the Andean highlands of Ecuador. Specifically, it examines two aspects of reciprocal exchange practices in these sites. It first looks at some of the factors that affect the continuity of reciprocal exchange practices, which other studies have found to play a vital role in recovery from disasters and resettlement. It then examines the roles of unequal power relations in the dynamics of reciprocity and a particularly Andean form of reciprocity and cooperative labor, the *minga*. In so doing, it identifies power-laden dynamics in the practice of reciprocity that tend to be overlooked in studies of social support and mutual aid in disasters and resettlements. I argue that these dynamics are critical to an examination of reciprocity in these contexts because they have important implications for the distribution of scarce relief and development resources.

Globally, natural disasters affected nearly 255 million people in 2011 (Guha-Sapir et al. 2012) and forced displacement and resettlement affects more than 30 million people each year (UNHCR 2010). These phenomena are destructive of livelihoods and wellbeing and compel affected people to adapt to new environments, lifeways, and subsistence efforts (Jones and Murphy 2009; de Wet 2006). To help shed light on an issue that is truly global in scale, this study builds upon research on reciprocity and unequal power
relations by testing appropriate hypotheses for disaster-affected and resettled groups. A wealth of anecdotal references to latent conflict, weakened alliances, exploitation, opportunism and resistance to social hierarchies in the resettlement literature (Cernea 2003; Koenig 2001; Behura and Nayak 1993; Baboo 1992) indicates the potential contribution of a systematic study of this topic. A central goal of this study is to address gaps in the research literature regarding how reciprocity, cooperative labor, and local power structures change in the processes of disaster, displacement and resettlement and how informal exchange relationships are linked to survival in these contexts. In this study, I examine the tension between cooperative, mutual support practices and unequal power relations and how they influence individuals' access to scarce resources in resettlement.

Because disasters and resettlement involve varying degrees of change in patterns of individual and group access to resources, institutions and services (Jones and Murphy 2009; de Wet 2006), anthropologists have looked to pre-existing informal relations involving the mutual exchange of labor and material for agricultural production (Scudder 1985; Marx 1990) or goods and services in order to cope with the scarcity and isolation of impoverishment that accompanies disaster and displacement (Porter et al. 2008; Avenarius and Johnson 2004; Cernea 2006). However, such studies underemphasize diverse experiences within groups (Beazley 2009; Malkki 1995) and the extent to which disaster relief efforts and group-based resettlement schemes empower social and economic elites, reify gendered hierarchies, manipulate allegiances, and engender social conflict (Cernea 2003, 1997; Koenig 2001). Disaster researchers and the communities and institutions responding to disaster-induced resettlement consistently emphasize the
critical roles played by social networks and informal exchanges of social support in the processes of disaster mitigation and recovery. One persistent question is how social support networks survive the risks inherent in displacement and resettlement (Whiteford and Tobin 2009; Avenarius and Johnson 2004; Cernea 2006, 2003, 1997).

Disasters and resettlements homogenize the needs and experiences of relocated households, but it also provides opportunities and constraints that shape adaptations to the resettlement context. Among disaster-related resettlements, numerous cases exist in which marginalized groups mobilized and demanded more accountability and response from the state, political leaders, and multinational non-governmental organizations (Oliver-Smith 2006). Such marginalized groups often seek a political strategy that makes them appear more homogeneous than they really are. A political economic framework suggests a major factor in variation in resource access within these communities lies in the relationship between reciprocal exchange relations and political power. This study examines how hierarchical exchange relations in resettlement communities are associated with political strategies and influences of actors occupying various positions in the overall exchange network.

Mingas are communal labor groups—common throughout the Andes—that organize community members into regular and ad-hoc work parties for projects ranging from community infrastructure and agriculture to social services and political action. Typically, a member of each family participates in the minga. Several authors have studied the patterned, asymmetrical reciprocity bound up in minga exchanges and relations including the expression, concealment, exercise and disputes of class, power and identity (Colloredo-Mansfeld 2009; Mayer 2002, 1974; Mitchell 1991; Orlove 1977;
Whitten 1969). A core problem addressed by this dissertation is that no prior study has examined the role of mingas and associated reciprocity in disaster mitigation or resettlement. The proposed research asks the following questions:

- How are social relations and practices affected by changing ecological conditions and economic strategies in disaster-induced resettlements?
- How are power relations produced and exercised in the cultural practices of collective labor and reciprocity leveraged in this context?
- To what extent do these practices influence the distribution of scarce development resources in the resettlement process?

These questions frame a critical examination of the emergent dynamics of political power under conditions of crisis and change; of the encounter between rural cultures at the margins of the state and capitalist economies in the processes of disasters and resettlement. Study hypotheses anticipated that participation in mingas to depend on the degree of involvement in wage labor, the tangible benefits of participation, and the extent to which relationships connect individuals to the group. Political power was expected to be directly related to actors’ locations in the hierarchical flow of reciprocal exchanges, which was expected to bear upon the distributions of scarce resources in the study sites.

In order to explore these important issues, I developed a mixed-method research design aimed at capturing variation in core study variables through the recursive discovery and corroboration of analytical domains and the evaluation of study hypotheses (Driscoll et al. 2007). This strategy employed a range of common anthropological data collection methods—archival research, key informant interviews, participant observation,
and semi-structured interviews—that build upon one another in an iterative process that identified specific terms, practices, and events in order to design effective data collection tools at each successive stage of the research process (Bernard 2011:213), while also serving to build relationships, identify key informants, and locate and enter settings most relevant to the study (Bestor 2002; Cromley 1999).

Fieldwork for this study took place from August 2011 to January 2012, during which time I resided in the town of Penipe, Chimborazo, Ecuador, adjacent to one of the several disaster-induced resettlements in the region, and participated in the daily activities of each of the two research communities nearby. This was, however, not the first time I lived and conducted research in these sites. In 2009, I lived and worked in Penipe for eleven months as a fieldworker for a National Science Foundation-funded research project on social networks and social support in areas of chronic disaster and resettlement under the guidance of project PIs and CoPIs Dr. Linda Whiteford, Dr. Graham Tobin, Dr. Eric Jones, and Dr. Arthur Murphy (NSF 0751264/0751265, Collaborative Research – Social Networks in Chronic Disasters: Exposure, Evacuation, and Resettlement). During this time, I conducted detailed censuses, resource and wellbeing profiles, and personal network interviews in households in both of the proposed research sites. My work in the region in 2009 helped me understand the feasibility and the constraints of conducting of research in the proposed sites, and it afforded me the opportunity to build a wealth of relationships and rapport, plus secure the stated consent of the research subjects in advance. More importantly, it helped me to identify local practices and institutions that were crucial to developing the research questions and design of the present study.
Importance of the Research

The sheer scale of impact of disasters and resettlement commands attention from social scientists to examine their root causes and processes of response and recovery. On average, disasters affect more than one quarter of the world’s population each year (Sahil-Gupta 2012) and more than thirty million people are forced into resettlements each year as a result of violent conflict, development, and natural disasters (UNHCR 2010). But disasters are important for theoretical reasons as well. Research in contexts of crisis and change enables scholars to interrogate the structures of state and society as they are exposed under these conditions (Greenhouse 2002). Here, we find forms of human agency contesting social structures and revealing important aspects of societies, cultures, and political economies that might otherwise be obscured or latent and which provide special opportunities for evaluating and developing social theory (Martínez Novo 2008:90). In these contexts, relations of unequal power are thrown into relief in what has been called a *crise revelatrice* (Sahlins 1972) that can expose social and political economic inequities and create apertures for both their rectification and their reification. At times, this may be true for disaster-affected and resettled people themselves, for whom these crises may constitute a sort of “structuring idiom” that expose the dynamics of power, domination, and exploitation that affect their livelihoods (Henry 2005).

Ecuador, too, is a compelling place to conduct such a study, as it is commonly overlooked in the broad scope of Latin American studies (Handelsman 2000:xiv). Scholars outside of the country have not paid the same attention to Ecuador as they have to other South American nations (Peloso 2003:125). In Ecuador, chronic and large scale social and political economic changes have long proven challenging to anthropologists
and social theorists (Martínez Novo 2008:90). The small cadre of American anthropologists that has focused on Ecuador (cf. Whitten 2003) has been criticized by Ecuadorian anthropologists for idealizing indigenous cultural practices and identities while remaining conspicuously silent on political economy and the unequal power relations that inhere in indigenous cultures (de la Torre 2006:250). The present study addresses these lacunae in anthropological studies of Ecuador by building on the work of Ecuadorian anthropologists that have examined power relations and political economy (Bretón 2008, 2003, 2001, 1997; Bretón and García 2003; Martínez 2003a, b) and American anthropologists that have focused on critical aspects of political economy (Jones 2003), cooperation (Jones 2004) and disasters and resettlement (Whiteford and Tobin 2009, 2004). This study employs the theoretical toolkit of political economy, with its emphasis on mode of production and the control of scarce resources as fundamental to forms of social organization, to examine local forms of reciprocity and unequal power relations in ethnically mestizo communities. Moreover, this study examines these practices in a disaster and resettlement context that draws local communities into increased involvement with the state and multinational development organizations because the involvement of these actors has important implications for the politics and economy of recovery.

The present study takes as its point of departure the increasingly popular scholarly interest in local forms of social support and cooperation in disaster and resettlement relief and recovery (Kaniasty 2012; Jones et al. 2010; Whiteford and Tobin 2009; Norris et al. 2005; Whiteford et al. 2005; Hurlbert et al. 2001; Cernea 1997; Bartolome 1984). I identify two primary ways in which these studies can be improved. First, resettlement
researchers have pointed to the ways in which resettlement schemes frequently displace kin and neighbors in ways that disrupt or destroy the social networks that sustain mutual aid and cooperation that could otherwise aid in the recovery process and in the growth and development of resettlement communities (cf. Cernea 2006, 2007, 1997). As has been pointed out elsewhere, this is primarily a model of inadequate inputs in the policy and implementation process (de Wet 2006b). It focuses on the immediate limitations of policy and resettlement administration and does not take into account the complexity of political economy and processes beyond the immediate scope of resettlement projects. In this study, I draw on the economic anthropology of reciprocity and posit a possible role of wider political economic processes—specifically, growing integration into the capitalist wage labor economy—as an added explanatory factor for the dissolution of reciprocal exchange relations in post-disaster and resettlement contexts. Thus, in one hypothesis, I expected wage labor employment to be negatively associated with participation in minga reciprocity. In so doing, I build upon the long history of anthropological studies that have identified modes of production as fundamental to the social organization of politics and economy.

The second way in which I seek to build upon these studies is by foregrounding the ways in which power relations are bound up in reciprocal exchange relations (Narotzky and Moreno 2002; Mitchell 1991; Orlove 1977; Whitten 1969). Studies of social support in disaster contexts have identified some key relationships between peoples’ social networks and the types of support they receive. One representative study found that individuals with smaller, denser networks were more likely to receive informal social support, while individuals with larger, less dense social networks were more likely
to receive support from institutions (Hurlbert et al. 2001). Assuming that individuals with these distinct network characteristics coexist in the same communities, I expected these differences to have important implications for the distribution of political power and relief and development resources. Drawing again upon economic anthropology and Andean research, I found a wealth of evidence from past studies suggesting that minga reciprocity is sustained by asymmetrical exchange relations typical of patron-client relations. These patron-client relations articulate with the broader context of Ecuador’s clientalist political system and suggest that the more powerful actors in local exchange networks are likely to act as brokers between local and extra-local organizations in disaster relief and resettlement. This is expected to be a primary source of political power and one factor that might explain the unequal distribution of resources in disaster and resettlement contexts.

**Review of the Chapters**

The literature review chapter is roughly divided into six parts, which establish a general theoretical framework, while reviewing the empirical justifications for the study hypotheses. The first section begins by outlining the general framework of political economy (Jones 2010; Watts 2000), which examines the dialectic tensions between modes of production and between classes in a society by focusing on power as a relational dynamic predicated on access and control of scarce resources. Political economy frameworks have proven apt at integrating subjects as complex as the politics of disasters and resettlement (Jones and Murphy 2009; Oliver-Smith 2010; Abala-Bertrand 1993) and rural Andean culture (Colloredo-Mansfeld 2009; Bretón and Garcia 2003; de la Torre 2006; Wolf 1955) and such a framework is therefore appropriate for a study that
seeks to integrate these domains. The framework I develop also works from anthropological studies of disaster and resettlement. This includes placing disadvantaged groups squarely in the center of analysis by emphasizing that disasters and resettlements are not merely the result of environmental events, but are also products of the unequal distribution of certain populations in hazardous regions and unsustainable prevention, response, and recovery procedures and infrastructure (Oliver-Smith 2009b; Wisner et al. 2004). The impacts (anticipated or otherwise) of disasters, displacement, and resettlement tend to “cascade” and perpetually undermine peoples’ capacity to mitigate or effectively adapt to chronic hazards and post-disaster and resettlement conditions (Whiteford and Tobin 2009; de Wet 2006b; Cernea 2003). While often appearing individually, these risks have cumulative and cascading impacts on peoples’ ability to mitigate or recover from chronic disasters. Throughout this chapter, I return to the recurring theme of access and control of scarce resources as the key domain of the production and exercise of power.

The remainder of the chapter focuses on the study of reciprocity and each of the succeeding five sections follow a similar format that begins with the reciprocity as it has been studied in disasters and resettlement, which is followed by the economic anthropology of reciprocity, then specific studies of Andean reciprocity, and then a model of reciprocity and power in disaster and resettlement contexts.

The second section of the literature review establishes a general framework for the political economy of reciprocity and the ways in which the reciprocal exchange practices are closely tied to the mode of production (primary production vs. capitalist wage labor). In disasters and resettlement, the partial or complete destruction or loss of land and agricultural resources is an almost universal outcome (Cernea 2003, 1997,
increasing the likelihood of a transition from primary production to wage labor (cf. Nayak 2000). The notion that reciprocal exchange practices are rooted in the specific conditions of pre-capitalist societies goes back to the earliest studies of reciprocity in anthropology. Research on Andean reciprocity and cooperative labor has identified a dialectical tension between these practices and the encroachment of capitalism, but the relationship is clearly complex. Researchers tend to examine capitalism and Andean reciprocity as contending domains but not necessarily the clash of two systems (Harvey 2002:62). The displacement of the primary agricultural mode of production brought on by wage labor employment is both theoretically and empirically associated with the dissolution of Andean cultural strategies (Martínez Novo 2008).

The third section of the literature review goes beyond examining reciprocity as it relates to the dominant mode of production by examining the power relations inherent in the reciprocal exchange relations presumed to serve the purposes of mutual aid. A political economic framework suggests a major factor in variation in power and resource access within these communities lies in the relationship between reciprocal exchange relations and political power. Political actors may exploit disaster situations by portraying themselves as major players in the delivery of aid and relief efforts have often reified dominant political and economic interests (Wisner et al. 2004; Chairetakis 1991). In surveying the patterned flow of exchanges in minga reciprocity, a generalized pattern emerges in which material resources tend to flow downward, while labor and loyalty flow from the bottom up, in spite of an explicit ideology of mingas as egalitarian associations (Mayer 2002; Mitchell 1991; Deere 1990; Whitten 1969). Following Bourdieu (1977), the model I develop questions the notion that reciprocity was associated with social
cohesion and instead argues that reciprocal exchange practices are part of the reproduction of society; a reproduction of asymmetrical power relations vis-à-vis bonds of dependence established in reciprocal exchanges.

The fourth section of the literature review situates the study of reciprocity in the context of the development encounter between communities, the state, and non-governmental organizations and explores the roles of local power structures in transmitting extra-local influences (Schweizer 1997:746). This section highlights the role of reciprocal exchange relations as they produce local “brokers,” powerful individuals in leadership positions within communities and institutions who set the agendas for decision-making contexts and “translate” the needs of one group to the other (Mosse and Lewis 2006). Power may have its origins in control of scarce resources, but brokerage power is necessarily derived through relationships with “outsiders” (e.g., the state, NGOs, etc.) and exercised in the process of defining agendas and influencing the outcomes of (often volatile or risky) decision-making processes (see also Elyachar 2002). The destruction and loss of means of primary production through disaster, displacement, and resettlement precipitates a significant shift toward access and control of the flows of aid from state institutions and non-governmental organizations as the primary resources of political competition (de Wet 1996b:338-339). The distribution of access and control over new resource bases is a decidedly political process (de Wet 2006a:7) where social actors frequently maneuver to acquire or consolidate control of resources by pressuring institutions to honor competing claims of legitimacy and entitlement (Mosse 2005; Henry 2002; Oliver-Smith 2006, 1996; Scudder and Colson 1982).
The fifth section of the literature review introduces gender as an important factor in power relations everywhere and specifically important in disaster and resettlement contexts because it has important implications for the distribution of scarce resources and therefore recovery or wellbeing. Cultures and social groups are often divided by class and ethnicity and they are always somehow divided by gender (Nagengast 2004:113). Gender-based inequalities contribute to vulnerability in disasters and resettlement (Willinger 2008; Wisner et al. 2004; Bolin et al. 1998; Hewitt 1995; Enarson and Morrow 1998). Gender is therefore expected to factor into the distribution of risk, power, and resources in each of the study hypotheses.

The sixth and final section of the literature review introduces the study hypotheses. The first is that the resettlement of network members in different sites and the transition to wage labor employment are negatively associated with participation in mingas (cooperative labor groups based on reciprocity). This is expected because of decreased reliance on reciprocal relations for resources by wage laborers (H1). The second hypothesis is that political power is exercised in mingas by individuals providing material resources to members of the group through reciprocal exchanges that are reciprocated through participation in mingas. Specifically, minga participation is expected to be positively correlated with the receipt by most people of material items from leaders in exchange for their participation (H2).

The third hypothesis examines the proposition that political power in a resettlement setting is based on access and control over scarce development resources, and that this power is maintained and exercised through exchange networks and unique ties to sources of aid and development resources. More specifically, this analysis will test
two claims: (H3a) influence over collective negotiations and benefit allocation is positively associated with the extent of a household’s total exchange relations with other households in the community, and; (H3b) more powerful actors and their allies will have a greater share of development benefits than others.

Chapter three establishes the ethnographic setting of the present study by describing the history, geography, political economy, and daily life in the two study sites, which are located in the central Andean cordillera in northwest Chimborazo Province of Ecuador, on the southern rim of the active stratovolcano Mt. Tungurahua. The first site is a village named Manzano, whose residents were displaced and resettled as a result of the 1999 and 2006 eruptions of Mt. Tungurahua. At the time of research in 2011, although the majority of Manzano villagers had been resettled into one of three resettlement villages, Manzano continued to function as a village, with many residents continuing to live and grow crops and raise animals in the village largely due to a lack of economic resources in the resettlements. The second site, Pusuca, is a resettlement community of 45 homes built by an Ecuadorian non-profit, the Esquel Foundation, and the state and national governments. Pusuca is home to 40 households displaced from villages near Manzano due to the 1999 and 2006 eruptions of Mt. Tungurahua. These two sites were selected because they are both known to organize regular cooperative labor parties (mingas) through village councils but also because they differed in key respects. The resettlement village of Pusuca includes land for crops and animals for each resettler household while the majority of Manzano villagers were relocated to resettlements with no land, productive resources, or employment opportunities (although five households in Pusuca are originally from Manzano). Secondly, while Pusuca lies well outside Mt.
Tungurahua’s high risk zone, Manzano lies in the shadow of the volcano and its people must contend with a chronic hazard situation that places their animals, crops, property, and health at risk. Finally, each village is tied to different governmental and non-governmental institutions and is governed in distinct ways that will be discussed further below. In the remainder of the chapter, I describe the broader historical and political economic context of these two sites, with a focus on the cascading impacts of disaster and resettlement, followed by detailed descriptions of each site, with attention to the political and reciprocal exchange practices that are of interest to the study.

Chapter four details the methodology of the present study. This study employed an iterative, mixed-method, 3-phase methodological strategy that involved the recursive discovery and corroboration of analytical domains and the evaluation of study hypotheses (Driscoll et al. 2007; LeCompte and Schensul 1999). Before beginning my research activities, I first secured lodging in Penipe, near the resettlement site, and reconnected with key informants and acquaintances in the study sites. Next, I began phase one of my data collection by conducting exploratory observation, key informant interviews, and archival searches to identify specific terms, practices, and events in order to design effective structured interview questions (Bernard 2011:150), while also serving to build relationships, identify key informants, and locate and enter settings most relevant to the study (Bestor 2002; Cromley 1999). Specific objectives of this phase were to identify village households, household members’ current place of residence, and to develop a thorough list of venues and times of group meetings and assemblies, specific items and services exchanged, and aid and development programs in each community. In the second phase, I administered structured interviews to obtain quantitative indicators of

Chapter five presents the results of the study, which are organized around the study hypotheses. The expectation of hypothesis 1 was that wage employment and residential distance would be negatively associated with minga participation. The results were mixed between the two sites. In Manzano, wage employment was not significantly associated with records of minga participation, but there was a significant negative correlation with residential distance and minga participation. In Pusuca, there were significant negative correlations with wage employment and residential distance with records of minga participation. When testing the association between residential distance and wage labor with self-reported minga participation, we find significant negative correlations with wage labor and residential distance in Manzano, but not in Pusuca. Qualitative data obtained through semi-structured interviews provide important context to these findings. The expectation of hypothesis 2 was that household exchange
participation would be positively associated with minga participation. Multiple tests of
the association between household minga attendance and total household exchange
participation found positive associations between these two variables in Manzano, but not
in Pusuca. As with hypothesis 1, qualitative explanations from respondents provide some
context to these findings. In Pusuca, more than 50 percent of respondents cited obliged
as their reason for participating in mingas, whereas in Manzano only a quarter of
respondents cited this rationale.

For hypothesis 3a, the expectation was that total household exchange participation
would be positively associated with brokerage and decision-making power and statistical
tests found a significant positive correlation between these variables in both sites. The
implication is that one way that politically powerful individuals exercise and maintain
their power is through forming reciprocal exchange ties. Those with more ties are more
likely to act as brokers between their neighbors and scarce aid and development resources
and more likely to have their views and agendas supported in local decision-making
processes. Hypothesis 3b was designed to test the assumption that households connected
through reciprocal exchange relations to highly connected households access a greater
share of relief and development resources than others. Statistical tests found a significant
positive association between being connected to highly connected households and project
benefit inclusion in both sites. This suggests that it is not only the powerful that access
these scarce extra-local resources, but also their less connected allies, which can be taken
as evidence of privileged inclusion as a form of power in both sites. As with the first two
hypotheses, self-reported explanations for non-inclusion provide some context here as
well.
Chapter six presents a discussion of the study findings, some of which were anticipated by the hypotheses, while others were not. Some findings that were not anticipated by the hypotheses were nonetheless consistent with ethnographic observations that provide necessary explanatory context to each finding. The findings for hypothesis one are somewhat counterintuitive in that the traditional village mingas were not significantly destabilized by residential distance and wage labor incorporation, whereas these factors did significantly inhibit minga practice in the resettlement based on newly-established institutions. In Manzano, it is clear that minga participation was primarily disarticulated by the exclusionary practices of traditional leadership structures. At the same time, many from Manzano also exhibited a greater awareness of unequal power relations and the asymmetric distribution of resources in the villages in the wake of the eruptions, displacement, and resettlement. Findings in Pusuca suggest that the tension between minga participation and wage employment has a great deal to do with the structuring of time and the unequal power to do so.

Minga participation in Manzano was significantly associated with the density of a household’s reciprocal exchange relations with the group. Here, what we see is more consistent with the model of minga as dyadic contract (Whitten 1969), where people’s participation is based on their reciprocal exchanges with others. We do not find this same relationship in Pusuca because participation was mandatory for all households, regardless of their ties to others in the group. However, as mentioned above, Pusuca was a very new community at the time of research (just 2 years old) and, although more than half of the resettlers were from the same village origin, the types of reciprocity that existed in Manzano had not yet developed in Pusuca. What is clear from statistical tests of
interview and archival data and from ethnographic observations is that mingas in Manzano were based largely on personal relationships that involve reciprocal exchange relations, while mingas in Pusuca were based instead on institutional parameters. Unlike Pusuca, where the intervention of a non-governmental resettlement organization helped build new political institutions and a system of bylaws for participation and project inclusion, political power in Manzano was based on the traditionally male-dominated patron-client political networks that have characterized the region for more than a century. Yet one of the ways in which politically powerful individuals maintain and exercise their power in both sites is through exchange relationships. Those with more exchange ties are more likely to be turned to for access to scarce development resources and to have their views and agendas supported. Forms of exchange helped build and maintain trust between disaster-affected people and resettlers just as they had prior to the disasters and resettlements. They also serve to build and maintain power in several ways, which are discussed in detail. Statistical tests also found a significant positive association between the extent of exchange relations with powerful households and inclusion in disaster relief and development projects, as expected in hypothesis 3b. The conclusion is that it is not only the powerful who benefit from unique ties to outside resources, but also their less powerful allies within their communities.

The chapter concludes with a review of the study findings as they relate to theories of power. Study findings call into question certain theoretical models of disasters and resettlement, while confirming others. For one, models of disasters and resettlement that focus on these phenomena as departures from routine culture and practice are problematic because they presume a sort of pre- and post-resettlement stasis and bracket
out potentially perennial tensions of routine cultures and allows for a return to a
presumed “normal.” I say problematic because it largely ignores the tensions and
inequities that exist in communities prior to resettlement and which might affect recovery
and the political and economic sustainability of resettlements. Second, several existing
analytical frameworks for the study of disasters and resettlement are found inadequate
because of a lack of attention to power. I found that the dialectical tension between wage
employment and minga participation was not necessarily one of fundamental opposition,
but instead built on the unequal distribution of power to structure time and organize
mingas. Third, the findings of this study call into question models of cooperation that
explicitly rely upon the social, cultural, and economic homogeneity of social groups as a
basic condition for cooperation. In contrast, it is apparent that the more heterogeneous
site of Pusuca was more effectively and inclusively organized than the homogeneous site
of Manzano. Fourth, study findings identify the complexity of gender as it factors into
power and the distribution of resources in the study sites. Finally, the discussion chapter
places the findings in the context of historical factors, specifically the extent to which the
sustained recruitment of participants for the production of common resources is the
source of political power in the study sites and the ways in which this articulates with the
clientelist political system of Ecuador. Institutional interventions by the resettlement
agency in Pusuca provided productive resources to all resettlers, promoted the poor and
marginal to positions of leadership, and generally avoided the reification of local power
relations, their efforts leave wider social and political structures unchanged.
The concluding chapter reviews the findings of the study and highlights their relevance for anthropological inquiry in general and the study of reciprocity and cooperation in disaster and resettlement contexts in particular. The chapter then considers the limitations of the current study, which include limitations in the study design, while identifying ways in which the study could be improved, and cautioning against generalizing study findings based on the small sample of sites (n=2). I then present several recommendations for further study by suggesting a comparative study of forms of reciprocity and cooperation in multiple contexts, including a variety of Andean, disaster/non-disaster, resettlement/non-resettlement sites. I identify a core set of questions and variables that could improve anthropological knowledge about the ways in which different forms of reciprocity and cooperation operate in these contexts. The chapter then concludes with a set of recommendations that resettlement agencies might consider when working with similar populations and the development challenges associated with resettlement and working with local economic strategies, institutions, and practices.

Place in Anthropological Inquiry

This is a study which can contribute to anthropological and broader interdisciplinary knowledge about reciprocity and cooperation in the contexts of Andean culture, disasters, resettlement, and development. As a detailed examination of local practices, which is guided by theories of culture, power, and economy (Eriksen 2004), this study sits squarely in the realm of anthropological inquiry. It follows Bourdieu’s (1977:11) reiteration of the ethnographic endeavor, which is to privilege the description and analysis of actual practices over stated cultural rules and norms. According to Henrietta Moore (1999:2), the uniqueness of anthropological study is not only related to
its focus on alterity and cultural difference, but on its unique capacities to explore the ways in which local practices and forms of alterity are situated in and produced in the context of unequal power relations. Knaft (1996:50) has referred to this as a “critical humanism,” which entails the detailed documentation of the fullness of people’s lives while exposing and critiquing forms of inequality and domination (see also Knaft 2006). The anthropological project so envisioned must therefore often situate specific sites of ethnographic study in the context of a globalized world, examining the ways in which specific local practices respond and contribute to global dynamics (Moore 1999:10). This leads naturally to the study of the ways in which development schemes reify and/or produce existing power relations and inequalities (Knaft 2006:415) and the ways in which disasters and resettlements are part of the longue durée of historical vulnerability (Oliver-Smith 2009b; de Wet 2006b; Henry 2005; Wisner et al. 2004). This project goes beyond all-purpose critiques of global processes by focusing on specific actors engaged in development schemes that obtain at the local level but which also entail mid-range interactions between actors and agencies (Knaft 2006:418-422).

According to Carrier and Miller (2005:25), one of anthropology’s most significant advantages over economics is the capacity to situate “economic processes with the lives of economic agents.” This project therefore tests hypotheses about the economic strategies of local actors and the ways in which they articulate with broader political economic systems. It likewise takes up some of the project of political anthropologists, who Thomassen (2008:267) says remain viable because they focus on “ethnographic study of localized political organization and practices, such as patron-client relations, that fall outside the regulated domains of the state.” In this study, the complementary projects
of economic and political anthropology are synthesized by applying the uniquely anthropological approach to political economy in the study of reciprocity, cooperation, and politics of disasters and resettlement. This approach goes beyond mere reference to wider global economies and political systems and delves into localized practices and their articulation with both the modes of production and the institutions and social systems which produce, modify, and constrain their influence (Roseberry 1988:179).
CHAPTER TWO: LITERATURE REVIEW

Studying Reciprocity in Disaster-Induced Resettlements in the Andes

This dissertation examines the ways in which a specifically Andean form of reciprocity, the minga, works in disaster-induced resettlement settings. In times of crisis, such as disasters, their aftermath, and the common outcome of resettlement, people rely not only on governments and non-governmental organizations but also on one another for support, often drawing on pre-existing social networks of reciprocity. These reciprocal exchange relations often experience crises as their members are displaced and seek alternative strategies for access to scarce resources essential for livelihoods and survival. As a part of these processes, groups and individuals are often thrust into contact with a variety of state and non-governmental organizations that provide resources and support for relief and development. In these contexts, relations of unequal power are thrown into relief in what has been called a crise revelatrice (Sahlins 1972) that can expose social and political economic inequities and create apertures for both their rectification and their reification.

The unequal power that inheres both in the social networks of disaster-affected resettlers and the ties between their communities and outside institutions can have consequences for the distribution of scarce relief and development resources, placing people at unequal risk for impoverishment. This study examines these processes in the particular context of two disaster-induced resettlements in the Andean highlands of Ecuador by formulating and testing three principal hypotheses. The first is that the
resettlement of kin and community members in different sites and the transition to wage labor employment are negatively associated with participation in mingas (cooperative labor groups based on reciprocity). This is expected because of decreased reliance on reciprocal relations for resources by wage laborers (H1). The second hypothesis is that political power is exercised in mingas by individuals providing material resources to members of the group through reciprocal exchanges that are reciprocated through participation in mingas. Specifically, minga participation is expected to be positively correlated with the receipt by most people of material items from leaders in exchange for their participation (H2). The third hypothesis examines the proposition that political power in a resettlement setting is based on access and control over scarce development resources, and that this power is maintained and exercised through exchange networks and unique ties to sources of aid and development resources. More specifically, this analysis will test two claims: (H3a) influence over collective negotiations and benefit allocation is positively associated with the extent of a household’s total exchange relations with other households in the community, and; (H3b) more powerful actors and their allies will have a greater share of development benefits than others.

This analytical framework goes beyond existing models of anthropological inquiry in disaster recovery and resettlement in three key regards, each challenging the persistent concept of disaster-affected people and forced resettlers as powerless victims (pace Beazley 2009) in different ways. Specifically, the first hypothesis examines both imposed institutional factors (resettlement in different locations) and the agency exercised by households adapting to changing ecological conditions by pursuing alternative economic strategies (wage labor). The second hypothesis challenges the
tendency in disaster and resettlement research to treat reciprocal exchange relations as undifferentiated forms of mutual aid and support. The third hypothesis goes beyond existing frameworks that assume that the primary power relations in disasters and resettlements are between groups and institutions by examining power relations among resettlers and disaster-affected people and the ways in which they influence the distribution of resources in resettlement. To introduce the literature supporting this framework, I first review understandings of how unequal access to resources is exploited to access or maintain power, often referred to as political economy. I then highlight the relevant issues in this domain as they have emerged in the literature on disasters, resettlement, and development. Following this, I review reciprocity from a framework that considers how production and distribution are generated via relationships between raw materials (including land), tools (including infrastructure), and labor. In capitalism, money and finance are the grease that helps these factors of production work together. In some small-scale agricultural settings, like my field sites, it is reciprocity that provides at least some of the oil. I therefore focus on Andean forms of reciprocity. Finally, I conclude by situating the study of reciprocity in the context of the politics of resource distribution as it is negotiated by different actors and institutions in resettlement.

**Disasters, Resettlement, and Power**

One of the enduring commitments of anthropology is to critically examine and theorize inequality, power, and domination (Knauft 2006, 1996). For anthropologists, it is not enough to identify the presence or absence of these phenomena at macro-level scales. Rather, one of the more important tasks of anthropology is to investigate the details of power and inequality as they are practiced, experienced, and interconnected (Knauft
2006, 1996; Moore 1999; Scheper-Hughes 1992). In this dissertation, I am concerned with three key questions: 1) How are social relations and practices affected by changing ecological conditions and economic strategies in disaster-induced resettlements? 2) How are power relations produced and exercised in the cultural practices of collective labor and reciprocity leveraged in this context? 3) To what extent do these practices influence the distribution of scarce development resources in the resettlement process? These questions lead somewhat naturally to the toolkit of political economy (Jones 2010; Watts 2000), which examines the dialectic tensions between modes of production and between classes in a society by focusing on power as a relational dynamic predicated on access and control of scarce resources. Political economy frameworks have proven apt at integrating subjects as complex as the politics of relief and resettlement (Jones and Murphy 2009; Oliver-Smith 2010; Abala-Bertrand 1993) and rural Andean culture (Colloredo-Mansfeld 2009; Bretón and Garcia 2003; de la Torre 2006; Wolf 1955).

Political economy is a theoretical framework that examines the construction of social order through economic production, political prestige, and ideology (Blanton et al. 1996). Jones (2010:80-81), building from Blanton et al., characterizes anthropological political economy as an approach to studying the production and maintenance of power through focusing on primary efforts of elites in these three domains of economics, politics and ideology; access and control of scarce resources; accumulating prestige through unique ties outside the group vs. prestige emerging from rituals; plus, appeals to common ideology. Throughout this chapter, I return to these key facets of the maintenance of power.
Disaster and Resettlement Risks and Impacts: Stages, Triggers, Cascades

Several works review anthropological contributions to disaster research (Jones and Murphy 2009; Gunewardena and Schuller 2008; Henry 2005; Hoffman and Oliver-Smith 2002; Oliver-Smith 1996), resettlement (Oliver-Smith 2009a, 2005; de Wet 2006a; Cernea 1993), and development (Escobar 2011; Olivier de Sardan 2005; Mosse 2005). Disaster research has increasingly focused on power and inequality and ultimately to challenge popular notions of what disasters are and just how natural they may be. This general approach has been employed by anthropologists (Adams et al. 2011; Jones 2010; Oliver-Smith 2009b), geographers (Lein 2009; Collins 2008; Wisner et al. 2004; Cutter et al. 2003), sociologists (Freudenberg et al. 2008), social psychologists (Lindell et al. 2006), and historians (Bankoff 2003, 2001). Anthropological studies of resettlement and development likewise focus on questions of impoverishment (Cernea 2003, 2000) and power (Escobar 2011; Mosse 2005; Lewis and Mosse 2006). Here, I highlight some of the more salient features of power, inequality, and models for studying disasters and resettlement as they relate to this particular study.

The present study takes place in the simultaneous context of disaster-induced resettlement and chronic hazard conditions, a resettlement that still receives ashfall but which lies outside the high-risk zone of the volcano. Although in scholarship, policy, and public discourse, disasters tend to be viewed as sudden shocks of nature that must be studied by technical experts for prevention and mitigation, it is worth questioning the extent to which disasters are “natural” (Wisner et al. 2004). Disasters are not merely the result of environmental events, but are also products of the unequal distribution of certain populations in hazardous regions and unsustainable prevention, response, and recovery.
procedures and infrastructure (Oliver-Smith 2009b; Wisner et al. 2004). Disaster frameworks that focus on environmental “triggers” (e.g., Smith 2001; Alexander 1993) or focus on stages of response and recovery (e.g., Platt 1999; Dynes et al. 1987) therefore need to be complemented with processual frameworks of political economy. Doing so enables analysis of processes that render some groups more vulnerable than others and which undermine their capacities to recover and adapt (Whiteford and Tobin 2009; Wisner et al. 2004). Another issue is that the environmental trigger and stages of recovery frameworks “assume that disasters are departures from ‘normal’ social functioning, and that recovery means a return to normal” (Wisner et al. 2004:10). Any implication that disasters or resettlements are “temporary” only obscures the fact that daily life for many people is experienced as chronically insecure, economically unstable, and frequently entails prolonged periods of crisis and trauma (Henry 2005; Bankoff 2003; Haque and Zaman 1993; Davis 1992; Hewett 1997, 1983; Zaman 1989; Torry 1979). It is necessary to shift analytical focus from both linear and cyclical “stages of recovery” models (Baird 2010; Lindell et al. 2007) to complex and patterned impacts of disaster and resettlement. A political economic approach places disadvantaged groups squarely in the center of analysis, and allows the possibility that returning to a non-hazardous state is not a typical option for many groups and individuals.

Once-popular anthropological models for studying resettlement have also proven inadequate because of their focus on linear and cyclical processes of crisis, transition, and recovery. Scudder and Colson (1982) developed a scheme for studying resettlement in four stages: recruitment, transition, development, and incorporation, or the “handing over” of resettlement administration to resettlers themselves. This analytical scheme
focused on the stresses that were unequally distributed by age, gender, occupation, and
civil status at each stage. The original model was applied to voluntary resettlements, but
was later adapted to involuntary resettlements (Scudder 1985). The problem with this
model is that it assumes the presence of all four stages in resettlement and is therefore
biased toward the successful resettlement processes, whereas most resettlement schemes
tended to fail in one or more of these stages or never reach them at all (Cernea 2000;
Cernea and Guggenheim 1996; Partridge 1989; de Wet 1988).

Research on both disasters (Whiteford and Tobin 2009) and resettlement (Oliver-
Smith 2010; Whiteford and Tobin 2009, 2004; Colson 1999; Cernea 1997; Harrell-Bond
1986) consistently demonstrates that the risks and problems encountered in recovery and
resettlement beget further vulnerabilities and greater impoverishment. The impacts
(anticipated or otherwise) of disasters, displacement, and resettlement tend to “cascade”
and perpetually undermine peoples’ capacity to mitigate or effectively adapt to chronic
hazards and post-disaster and resettlement conditions (Whiteford and Tobin 2009; de Wet
2006b; Cernea 2003).

Cernea (2003, 2000, 1997) made impoverishment risks the centerpiece of his
model for the study of resettlement. He identified eight core risks encountered in
resettlement that he considers variable domains central to planning, predicting, and
evaluating the outcomes of resettlement. These are landlessness, joblessness,
homelessness, marginalization, food insecurity, increased morbidity, loss of access to
common property resources, and disarticulation of social groups (Cernea 2003). The risks
outlined in Cernea’s model have been consistently identified in resettlements in Asia (Shi
et al. 2002; Agnihotri 1996; Hakim 2000; Nayak 2000; Mahapatra 1999; Ota 1996;
Thangaraj 1996), Africa (Kibreab 2000; Schmidt-Soltau 2003), and South America (Muggah 2000). The conceptual building blocks of Whiteford and Tobin’s (2009, 2004) *Cascade of Impacts* model share much in common with Cernea’s model. The Cascade of Impacts model was born out of research on disasters in Ecuador and identifies core variable domains (environment, economics, health, and social capital) quite similar to Cernea's Impoverishment Risks and Resettlement model (IRR) that, while appearing individually, have cumulative and cascading impacts on peoples’ ability to mitigate or recover from chronic disasters.

Helpful as these models are, they have several shortcomings. Although the variables in Cernea’s impoverishment risks in resettlement model might provide an index of status and attributes, they say little about the relational contexts within which these conditions are produced and they categorically overlook potential inequalities among resettled peoples. Ethnographic studies must go further to examine the specific ways in which social inequalities inhere in the unequal distribution of risk and resources in disasters and resettlement and avoid homogenizing disaster-affected people by class, culture, ethnicity, and gender. Whiteford and Tobin’s model, while placing social issues at the center of analysis, does not provide a clear definition of social capital from which to work. Another general problem with disaster and resettlement studies is that they portray disaster-affected people as passive, powerless victims (Beazley 2009; Hewitt 1997). Political economic studies do focus on structural inequalities, but from an anthropological perspective there is a problem of scale, as they tend to characterize societies or large groups and do not typically investigate the internal politics of particular social groups. A first step in this direction is to examine the specific reciprocal exchange
relations in disaster-induced resettlements in order to identify the variables that might affect the distribution of social and institutional support.

The first hypothesis in this study focuses on the core risks of social disarticulation and landlessness associated with resettlement. Social disarticulation refers to the dismantling and displacement of communities, kinship groups, and other forms of social organization (Cernea 1997). In the process, “life-sustaining informal networks of reciprocal help, local voluntary associations, and self-organized mutual service are disrupted,” resulting in “a net loss of valuable ‘social capital’” (Cernea 1997:1575). This has long-term consequences that compound other more tangible losses (Sowell 1996; Baboo 1992). In addition to the displacement of social groups and relations in resettlement, the partial or complete destruction or loss of land and agricultural resources is an almost universal outcome (Cernea 2003, 1997, 1996a; de Wet 2006, 1996), increasing the likelihood of a transition from primary production to wage labor (cf. Nayak 2000). Even under non-crisis circumstances, the displacement of the primary agricultural mode of production and the transition to wage labor employment is both theoretically and empirically associated with the dissolution of Andean cultural strategies (Martínez Novo 2008:94), a topic to which I will return below.

The second and third hypotheses go beyond social disarticulation by examining the power relations inherent in the reciprocal exchange relations presumed to serve the purposes of mutual aid in Cernea’s model. Disaster-induced resettlement homogenizes the needs and experiences of relocated households in many ways, but it also provides opportunities and constraints that shape adaptations to the resettlement context. Among disaster-related resettlements, numerous cases exist in which marginalized groups
mobilized and demanded more accountability and response from the state, political leaders, and multinational NGOs (Oliver-Smith 2006a). Such marginalized groups often seek a political strategy that makes them appear more homogeneous than they really are. However, research suggests that disaster-affected peoples and resettlers are not powerless (cf. Beazley 2009), nor are they merely empowered in their collective political strategies. A political economic framework suggests a major factor in variation in power and resource access within these communities lies in the relationship between reciprocal exchange relations and political power.

**Disarticulation of Reciprocity: Moral Economy and the Capitalist World System**

Resettlement is not merely a process of economic restitution and development. It involves the severing of social ties. According to Cernea (1997:1575-1576):

“if poverty is not only an absence of material means—such as land, shelter, work, food—but also powerlessness, dependency, and vulnerability, then the disarticulation of communities and the loss of reciprocity networks are significant factors in aggravating poverty”

Displaced persons are often sorted into shelters and settlements that break up families and extended kin relations (Harrell-Bond 1986, 1993; Van Damme 1995). Conditions of scarcity in interim shelters and resettlements often compound health and stress issues and undermine the capacities many groups have to mitigate crises through mutual aid (Whiteford and Tobin 2009, 2004; Wisner 2006; Chan 1995). Where resettlement schemes focus on agriculture and other rural plans, issues such as the availability and quality of land and water, access to services, credit, and settler cooperation become exceptionally important (Cernea 2000; Marx 1990; Scudder 1985; Rogge 1981; Thomas 1981). Some note the development of a dependency upon the services provided through resettlement plans for day-to-day needs (Gonzalez-Parra and
Simon 2008; Cernea 2003; Goodland 1997; Scudder 1997; Oliver-Smith 1992). Disaster victims are routinely treated as problematic objects of strategy and not as subjects with problem-solving potential (Whiteford and Tobin 2004; Kottak 1985). In spite of progress toward preventative models in disaster relief and mitigation policies at the subnational, national, and international levels, the practice of disaster management remains—especially in my research context in Ecuador—predominantly a matter of post hoc treatment and reaction (Macias and Aguirre 2006; Whiteford and Tobin 2004; Wisner et al. 2004; Solberg et al. 2003). Aside from being generally chaotic, this general trend in practice means that the directly and indirectly affected populations are acted upon and therefore do not exercise much agency in initial evacuations and mitigation initiatives (Whiteford and Tobin 2004; Wisner et al. 2004). In the immediate situation, victims are forced to abandon property they are unlikely to recuperate. What little transferable wealth they might have is lost along with their productive resources (Whiteford and Tobin 2004). Moreover, an issue that has increasingly taken focal prominence in disaster research, is the extent to which family members, extended kin, and other units of social organization are severed in hasty evacuations, thereby often exacerbating the resounding social, emotional, economic, health, and political costs of disaster mitigation (Whiteford and Tobin 2009, 2004, 2001; Jones et al. 2007; Norris et al. 2005; Avenarius and Johnson 2004; Unger and Powell 1980).

There are perhaps several risk factors that might affect the continuity of reciprocal exchange and cooperation practices in disaster-induced resettlements, but I have chosen to focus on two, for reasons discussed below. The first is that neighbors and kin are frequently relocated to different resettlements and there is a resulting dissolution of the
networks that sustain reciprocity and cooperation (Whiteford and Tobin 2009, 2004, 2001; Cernea 2003, 1996a; Anderson and Woodrow 1989). Although this risk requires only empirical testing and no real theoretical justification, it is important to account for because of the frequency of the incidence of displacing community members to different sites in resettlement and because this is a known factor in my study sites (see chapter 3). The second risk factor that might affect the continuity of reciprocity and cooperation in rural resettlements is a transition in the mode of production from primary production to wage labor. One consistently documented issue in the anthropology of resettlements is the relocation of agricultural producers to landless resettlements (Cernea 1996a), which is the case with one of the two sites in this study and will be discussed in detail in the following chapter. With the transition to landlessness, many resettlers are expected to seek out alternative economic strategies, with wage labor often chief among them (Nayak 2000). This leads to an issue that has been of perennial interest in anthropology, especially in the context of studies of reciprocity. Specifically, if reciprocal exchange relations and practices are predicated on pre-capitalist modes of production and adaptations to specific environmental conditions, does the transition to a capitalist mode of production—brought on by changing environmental conditions—result in the dissolution of these relations and practices?

The notion that reciprocal exchange practices are rooted in the specific conditions of pre-capitalist societies goes back to the earliest studies of reciprocity in anthropology. The anthropology of reciprocity can be traced back to Mauss’ seminal work, *The Gift* (2006 [1925]), a work which in many ways remains central to the anthropology of exchange and reciprocity today (cf. Hann 2006; Yan 2005; Godelier 1999). Gift
exchange, according to Mauss, is characterized by moral obligations of giving, receiving, and returning. In gift exchanging societies, refusing to give and refusing to accept are both hostile acts that reject the social order and the relations essential for maintaining that order (Mauss 2006 [1925]:13). In these societies, where there are no formal political institutions, gift exchanges foster the development of social ties of mutual obligation between adults. Gift exchange is therefore only theoretically voluntary; in practice, it is obligatory. Mauss developed an evolutionary scheme that included three stages. First, “total prestations” are social exchanges of non-economic transfers between groups, where gift giving is ubiquitous and essential for social integration. In the second stage, gift exchanges are engaged in between “moral persons” of different groups. In this stage, social institutions such as trade and the state, have assumed some of the roles of the gift. Lastly, commodity exchanges in the markets of modern societies have marginalized the role of the gift.

Mauss has been criticized for romanticizing traditional societies and for “an implicit evolutionism” (Eriksen 2004:89). Like Malinowski, Mauss’ analysis of kula trade calls attention to the fact that exchange need not necessarily be economically profitable and must also be situated in cultural contexts (Eriksen 2004:87). The analysis in The Gift has been criticized for overstating the distinctions between the societies in his evolutionary scheme, as there is ample evidence of the importance of reciprocal exchange in modern societies (Granovetter 1973; Stack 1974; Susser 1982). Malinowski (2005 [1922]), for example, documents many instances of the sale of an animal, which may later be gifted and subsequently bartered and, ultimately, consumed, providing ample evidence that multiple spheres of exchange might coexist although this does not diminish
the fact that Kula provides a structure for various systems of exchange. The notion of mutually-exclusive systems of exchange remains a relevant issue—both theoretically and empirically—in anthropology today.

Malinowski rejected much of Mauss’ interpretation of kula exchange and substituted the principle of reciprocity for Mauss’ “spirit of the gift” in social exchange by arguing that economic obligations are sustained by the threat of social and economic sanctions (Malinowski 1985 [1926]). Contrary to Mauss, who envisioned a moral order sustaining gift exchange and fostering the development of social cohesion, Malinowski claimed that people give and reciprocate in order to receive and continue receiving, which he considered the foundation of Melanesian social order (Malinowski 1985 [1926]).

Karl Polanyi, in his master work *The Great Transformation* (2001 [1944]), claimed that old-world feudalism and tribalism are contexts in which behavior was embedded in social and institutional contexts whose explicit functions were other than economic and governed by moral and cultural rules rather than economic ones. Polanyi (2001 [1944]), like Mauss, argued that economic exchange was once subsumed by social relations where reciprocity was the norm, but after the emergence of capitalism, social relations were subsumed by economic exchange. Peasant and non-market economies were categorically distinct from Western market capitalism and from each other in important ways that rendered formalist inquiry incapable of yielding valid comparative insights (Dalton 1961). The “great transformation” he spoke of came about when capitalism emerged and replaced pre-capitalist organizing mechanisms by forming social relations according to explicitly economic principles, which were then reflected back in
to the moral economy (Barth et al. 2005). Economic anthropologists following Polanyi’s theory maintained that the economies of different societies were based on distinct cultural processes and therefore deserve to be understood on their own terms (Isaac 1993; Sahlins 1972; Halperin 1977).

Spheres and Continuums of Exchange

The theories of Mauss (2006 [1925]), Malinowski (1985 [1926]), and Polanyi (2001 [1944]) all relied on some concept of a moral economy or social contract enabling reciprocal exchange practices that were mutually exclusive with or at least in tension with market exchange practices (see also Narotzky and Moreno 2002:285). However, the notion that reciprocal exchange is mutually exclusive with market exchange systems has come under scrutiny. In their studies of the Tiv in Nigeria, Laura and Paul Bohannan (1959) found that, prior to colonization, the Tiv distinguished between “economic spheres” where certain goods circulated separately and there were strict rules for conversion between spheres. During the colonial period, when money and market exchange were introduced, the economic spheres dissolved as monetary value became the standard. More recently, in research in Norway, Lien (1992) and Døving (2001) found economic spheres coexisting in modern monetary economies. Granovetter’s (1973) landmark study on the “strength of weak ties” examined the job-seeking strategies of urban professionals and found that they tended to find job leads through “weak ties,” or people with whom they were only tangentially connected. In contrast to prevailing theories that capitalism subsumed relationships under economic relations—a key tenet of Polanyi’s “great transformation” theory—Granovetter found that modern economic behavior in market economies was in fact embedded in non-economic contexts.
Appadurai (1986:11-13), Carrier (1990:20-25), Parry (1986:465), and Bloch and Parry (1989:8-12) likewise abandoned the radical opposition between gift and commodity economies in favor of overlapping continua that include these as extremes.

Sahlins (1974) acknowledged a debt to Mauss and Polanyi, but went on to criticize their use of reciprocity as an ideal type. Sahlins conceived of his forms of reciprocity as a sort of continuum, from positive (generalized) to negative, with balanced reciprocity in the center. Sahlins identified relational distance as the most important covariant of the continuum, but these forms of reciprocity could exist in the same time and place and among the same actors. The relationship between actors is fundamental to Sahlins’ theory. Relationships could absorb the pressures of rising exchange rates in times of scarcity and “the flexibility of the system depends on the social structure of the trade relation” (Sahlins 1974:313). The “norms” of reciprocity were relative and relational in Sahlins’ framework, in contrast to the abstract and absolute norms of reciprocity in Mauss and Polanyi.

*Support Networks of the Urban Poor*

In considering the place of reciprocity in pre-capitalist and capitalist modes of production, we might also consider the reciprocal exchange networks of the urban poor, most famously described by Stack (1974), Lomnitz (1977), Susser (1984), and Gonzalez de la Rocha (2001). These authors have been cited by resettlement researchers as examples of the types of support networks that are important factors in recovery from disasters (Jones et al. 2011) and resettlement (Bartolome 1984). These ethnographies described reciprocal exchanges of mutual aid that were produced in the context of modern capitalist economies, though they existed at the margins as adaptations to the
sarcity and isolation of urban poverty. These reciprocal exchange repertoires exhibited a
dialectical tension with the capitalist market, as they were adaptations to market
exclusion. Susser (1984) describes how poor women found it difficult to meet the dueling
demands of low-wage employment and their mutual support networks. Low wage
employment made it impossible to meet their reciprocal obligations, such as shared
childcare and meal sharing, meaning that they would have to find a way to pay for these
services, which greatly diminished the potential payoff of employment. Significantly,
these were reciprocal exchange relations produced at the margins of the capitalist system
and, while produced in the context of capitalist development, they are nonetheless
adaptations to exclusion from the development process.

*Dialectics of Andean Exchange Systems*

Because this study is concerned with reciprocity in disaster-induced resettlements
in the Ecuadorian Andes, it is important to consider the ways in which particularly
Andean practices of reciprocity have been studied in relation to changing modes of
production. Reciprocity, kinship, and communal labor have long been identified by
anthropologists as essential domains of Andean productive and cultural practice
(Martínez Novo 2008; Mayer 2005; Harvey 2002; Harris 2000). These practices are
historical products of subsistence cultivation and small-scale animal husbandry (Harvey
2002) that demand seasonal investments of labor beyond what households can provide
(Harris 2005), fostering the coordination of a form of reciprocity termed “exchange
labor” (after Erasmus 1956). Moreover, ecological variables such as drought, volcanic
activity, or erosion that periodically affect households’ abilities to meet subsistence needs
are additional incentives for the practices of delayed reciprocal exchange of consumption
goods and other forms of mutual aid (Martínez Novo 2008; Mayer 2005). Reciprocal exchanges are so pervasive throughout the Andes that the Quechua terms ayni (dyadic reciprocal exchange) and minga (collective exchange labor) are invoked by peasant and indigenous movements to mobilize resistance to capitalism, state intrusions, and multinational development organizations by contrasting the virtues of mutual aid in Andean culture with the greed and exploitation of the market (Poole 2009; Mayer 2005; Taussig 1980).

Ecuadorian anthropologists began to debate the potential consequences of the erosion of the Andean cultural practices of reciprocity and cooperative labor by the encroachment of capitalism in the wake of agrarian reforms in the 1970s (Martínez Novo 2008; Seligman 2008; Chiriboga 1988; Martínez 1984; Farga and Almeida 1981). Many wondered if indigenous and peasant groups would become “proletarianized” by the displacement of primary production by wage labor in the region (e.g., Mintz 1974). These issues have remained central to Ecuadorian and Andean research throughout phases of development and resistance in the Andes. As economic and political reforms throughout the Andean region have had uneven effects (Harvey 2002; Becker 2000; de la Torre 2000), the question remains as to whether or not Andean reciprocity and cooperative labor constitute “threatened form[s] of social insurance” (Wutich 2007).

The displacement of the primary agricultural mode of production brought on by wage labor employment is both theoretically and empirically associated with the dissolution of Andean cultural strategies (Martínez Novo 2008). In her work in the Andean highlands of Northern Peru, Deere (1990:103) found that the wealthy often avoid reciprocating minga labor because they host too many laborers at once to return the labor
themselves and instead reciprocate with feasting. In the wake of the monetization of rural economies in the 1970s, she also noted a transition to paid labor over minga reciprocity (Deere 1990:204). Likewise, Mayer (2002) found that wages are increasingly paid by village big men in the Peruvian highlands in order to avoid the obligations to reciprocate with many laborers (Mayer 2002:14). Also working in Peru, Mitchell (1991) found that paid labor had marginalized the practice of mingas, but also found that minga practice endured as an alternative to the dispersal of limited cash reserves, on the one hand, and the provision of labor for wages of meager purchasing power on the other (Mitchell 1991).

Jones (2003) employed a world system framework in his comparative ethnographic analysis of class-based networks in peasant villages in Ecuador. His central question focused on the extent to which closure between class networks would be associated with degrees of village integration into regional capitalist economies, indicated by the prevalence of wage labor over agricultural production. Jones found that the class compositions of networks were more salient with integration; that is, the transition from primary production to wage labor facilitated the development of social networks with more homogenous class compositions (Jones 2003:6). He attributes this largely to wage employment constraining the ability of individuals to maintain social responsibilities across class lines, which may have left them with “no other choice than to interact only with people from their own socioeconomic level” (Jones 2003:15).

Research on Andean reciprocity and cooperative labor has identified a dialectical tension between these practices and the encroachment of capitalism, but the relationship is clearly complex. Researchers tend to examine capitalism and Andean reciprocity as
contending domains but not necessarily the clash of two systems (Harvey 2002:62). As with researchers studying reciprocity outside the Andean region, Andean researchers have pointed to “spheres” of exchange which individuals and households might engage in simultaneously and which might interact with one another (Mayer 2005; Harvey 2002; Fonseca Martel 1972:52). However, it is important to note that recognizing the coexistence of exchange practices is not tantamount to a rejection of the dialectical tension between them. Bourdieu (1977:173) recognized a tension between market and gift economies, as conveyed in his case of the North African mason who, after working for pay for several years in France, refuses an invitation to a ritual meal with a client so as not to diminish the expectation of payment. This is a rejection of the transformation of the monetary value of labor into gifts (Bourdieu 1977:173).

From Social Support and Social Capital to Reciprocity and Power

*The community is important because it is typically seen as: a locus of knowledge, a site of regulation and management, a source of identity (a repository of “tradition”), an institutional nexus of power, authority, governance, and accountability, an object of state control, and a theater of resistance and struggle (of social movement, and potentially of alternate visions of development). It is often invoked as a unity, as an undifferentiated entity with intrinsic powers, which speaks with a single voice.... Communities, of course, are nothing of the sort – Watts (2000:266-267)*

Studies of social support and social capital have been important complements to studies of risk, marginality, and impoverishment because they emphasize the agency of disaster-affected and resettled people. In a disaster or resettlement, some groups and communities are less susceptible to risk and demonstrate patterns of successful coping or adaptation (Porio 2011; Norris et al. 2008; Robinson 2005; Werner and Smith 1992). While historical and structural factors bear upon disaster-affected people, it is also important to recognize the agency and adaptive capacities of disaster-affected peoples by
looking at forms of collective action and the exchange of social support (Kaniasty 2012; Jones et al. 2011; Elliot et al. 2010; Wisner et al. 2004). Although there are many reviews of the concept of social capital (Kadushin 2011; Lin 2001), in disaster studies it generally refers to the variation in resources accessible through social networks (Norris et al. 2008; Masten and Obradovic 2008; Wisner et al. 2004; Hurlbert et al. 2001).

Because disasters and resettlement involve varying degrees of change in patterns of individual and group access to resources, institutions, and services (de Wet 2006a), researchers have looked to pre-existing and emergent informal relations involving mutual aid and the exchange of labor and material for primary production (Moritz et al. 2012; Bollig 2006; Colson 2003, 1973; Marx 1990; Caldwell et al. 1986; Scudder 1985) or goods and services in order to cope with the risks and vulnerability that accompany disaster and displacement (Porter et al. 2008; Cernea 2006, 2003; Wisner et al. 2004; Avenarius and Johnson 2004). Unger and Powell’s (1980) study of families under stress found that they looked to different categories of people for various kinds of aid. Turning to social networks as a complement or alternative to institutional aid has been found to enhance individual and group recovery (Kaniasty 2012; Jones et al. 2011; Aldrich 2011; Perry et al. 2008; Ibañez et al. 2004; Whiteford and Tobin 2009; Hurlbert et al. 2001; Oliver-Smith and Hoffman 1999; Marx 1990; Robinson et al. 1986). The forging of patron-client bonds and reciprocal exchange relations are common adaptations (Shipton 1990; Caldwell et al. 1986; Dahl and Hjort 1979), but they can become strained in protracted recovery periods (Shipton 1990; van Apeldoorn 1981). These kinds of reciprocal exchange relations can be dyadic (i.e., between individuals) or concentric (i.e., redistribution by central leaders) (Shipton 1990:368). Kin are common types of ties in
reciprocal exchange relations, but land shortage can place significant strains on these relations (Shipton 1990; Iliffe 1987).

In their study of wellbeing and social support in the aftermath of Hurricane Floyd in North Carolina in the summer of 1999, Avenarius and Johnson (2004) found that a lack of weak ties led to difficulties in obtaining sufficient support for recovery. In their research on Hurricane Andrew, Hurlbert and colleagues (2001:212) found that personal networks of “greater size, lower density, and greater geographic range” were positively associated with the receipt of institutional support in the wake of the disaster. They found also that individuals embedded in dense networks that reliably provided informal support also exhibited the lowest levels of access to support from outside the group, especially formal support from institutions (Hurlbert et al. 2001). Research has also found that the poor tend to access less social support than do the wealthy (Jones et al. 2011; Elliott et al. 2010; Norris et al. 2004; Hurlbert et al. 2001) and ample evidence also suggests that volunteerism from core networks is frequently followed by a decrease in availability of support and an increase in conflict and weakened social networks (Ritchie 2012; Henry 2005; Norris et al. 2004; Hoffman and Oliver-Smith 2002; Bolin et al. 1998; Palinkas et al. 1993).

A great deal of research has found evidence that group-based strategies that keep communities together help maintain and foster cooperation and recovery in resettlement. Many such research models have tended to valorize the social cohesion of “tight-knit” kin networks in “integrated” communities with high levels of participation in local organizations and cooperation (cf. Aldrich 2011; Cernea 2001, 1997). In his study of resettlements in Egypt, Sudan, Nepal, and Sri Lanka, Scudder (1985:129) found that
cooperation for agricultural production was greatest in group-based and more homogeneous resettlements, where resettlers were from the same kinship networks, villages, castes, religions, and ethnicities. In his ethnohistorical study of a South African resettlement, de Wet (1996) found that agnatic kinship accounted for a minority of cases of cooperation for agricultural labor prior to resettlement, but this became one of the dominant relations involved in cooperation after resettlement. He concludes that prior to resettlement, cooperation was based on social ties forged among neighbors over time, whereas there was a low level of trust among new neighbors in resettlement, which facilitated a transition to greater reliance on kinship for labor exchange. By breaking up prior social groupings and their antecedent ecological conditions, resettlement agencies eliminate crucial reciprocal exchange relations and undermine the conditions for recovery (de Wet 1993). Kibreab (2000:321) found that social groups were dislocated in Eritrean refugee resettlements in the Sudan, making cooperation and reciprocity difficult to foster and thus, like many others, recommends group-based resettlements that maintain existing communities. He also found a breakdown of community organizations in the resettlements that resulted in the “amoebic proliferation of leaders competing for power and the material benefits associated with it” (Kibreab 2000:321). In their studies of social capital and development in rural India, Krishna and Uphoff (2002:97) found that social homogeneity facilitates collective action while heterogeneity tends to deter it, although later Jones (2004) found heterogeneity to be useful a specific points in the evolution of collective action, and Ruttan (2008, 2006) further built on this work find that the role of heterogeneity depends on the domain of heterogeneity, the measure of collective action, and the type of (natural) resource engaged. Finally, in their study of
resettlements in Israel, Sebenius and colleagues (2005:242) found that impoverishment was greater where resettlements broke up old social groupings and recovery was greater in group-based resettlements that kept communities intact.

One significant problem with studies of social capital, social support, and group-based resettlements is that they lack a theory of power. These studies underemphasize diverse experiences within groups (Malkki 1995) and the extent to which disaster relief and group-based resettlement schemes empower social and economic elites, reify gendered hierarchies, manipulate allegiances, and engender social conflict (Clark-Kazak 2009; Koenig 2001). Disaster and resettlement literature is full of accounts of latent conflict, strained alliances, exploitation, opportunism, and resistance to established social hierarchies (Oliver-Smith and Button 2005; Robinson 2003; Behura and Nayak 1993; Oliver-Smith 1992, 1979; Baboo 1992). Political actors may exploit disaster situations by portraying themselves as major players in the delivery of aid and relief efforts have often reified dominant political and economic interests (Wisner et al. 2004; Chairetakis 1991). In their study of the 1985 Mexico City earthquake, Robinson and colleagues (1986) found that community and student groups felt empowered to mobilize and demand more accountability from the ruling political party. Oliver-Smith and Button (2005) further point out that disaster events and fallouts are not free of implication in political unrest, genocide, terrorism, religious persecution, or other forms of violent upheaval capable of further displacing populations and replacing governments (see also Johnston 2006, 2001; Wisner et al. 2004). Salzman (2004:123) argues that disaster-affected people may have similar interests but, lacking common ones (such as collective ownership of resources),
“competition for the limited good is not balanced by the solidarity of cooperation, sharing, and support, leaving each to weigh his or her separate interests.”

Because the development of resettlements necessarily involves the definition and regulation of access to resources, it is necessary to address the unequal power that inheres in the social relations and institutions that administer these processes. Looking at some of the findings on differential access to social support in disasters and resettlement, if some individuals have greater access to formal and/or informal support in their networks, does this have some implication for the distribution of resources in recovery and resettlement? Furthermore, in the context of social support exchanges and cooperation, do individuals with different degrees of access to scarce development resources exercise greater power over those who do not? And what degree of influence do more connected people have over the distribution of resources in resettlement? In order to address these lingering questions, it is necessary to address the role of power in reciprocity.

Reciprocity can be described as “a mutually contingent exchange of benefits between two or more units” (Gouldner 1960:164) and a form of mutual dependence. But reciprocity also includes “disruptive potentialities of power” (Gouldner 1960:165) where unequal power relations produce quantitative variation in the value of exchanges. In other words, the power to determine what is equivalent in otherwise generalized reciprocal exchanges varies between actors, such that there is a continuum of reciprocal exchanges ranging from balanced to negative, with the latter considered a form of exploitation. Bourdieu (1977) rejected the notion that reciprocity was associated with social cohesion and instead argued that reciprocal exchange practices were part of the reproduction of society; a reproduction of asymmetrical power relations vis-à-vis bonds of dependence.
established in reciprocal exchanges. According to Bourdieu, “the symmetry of gift exchange” gives way to “the dissymmetry of ostentatious redistribution” upon which political authority is predicated (Bourdieu 1977:210). The reproduction of systems of domination is based on this conversion of “economic capital” into “symbolic capital,” which obscures material interests and legitimizes relations based on economic dependence and exploitation “in terms of an all-embracing moral order” (Narotzky and Moreno 2002:287). The redistribution described by Polanyi and Sahlins is for Bourdieu “a means of enabling the social reproduction of relations based on domination and exploitation” (Narotzky and Moreno 2002:287).

Importantly, Sahlins (1974) also conceived of gift giving and reciprocity as exercises and legitimations of unequal power relations, another point at odds with Polanyi and Mauss’ use of reciprocity as an ideal type. To begin with, the giver is always the superior actor in a reciprocal exchange and may gain prestige or power while the recipient simultaneously becomes a debtor. The very act of giving may produce an unequal relationship. This proposition was expanded by Sahlins’ (1974:276-286) description of the “big men” in Melanesia, who were powerful brokers who amassed resources from group members and then engaged in public displays of generosity in which they would conspicuously distribute these surpluses in order to gain power, wealth, and prestige. The power of the big man was a product of his accumulation of surpluses and his “capacity to force a greater production from his supporters” (Sahlins 1974:276). This is interesting because there is a marked tension between mutual support and unequal power relations that plays itself out in a sort of concentric redistribution through reciprocity. The big man had to appeal to shared interests and norms with those from
whom he would claim these resources in order to legitimize his claims and the act of power (control over the scarce resources of the group) was subsequently transformed into an act of generosity in which the big man was the benefactor of the group.

*The Exercise and Reproduction of Power Relation in Andean Reciprocity*

Minga comes from the Quechua word “mit’a,” meaning “turn,” and refers to collective work parties that are part of a varied bundle of practices throughout the Andean region that mobilize social labor by means of often complex systems of reciprocity (Poole 2009; see also Orlove 1977). Researchers have pointed to mingas as distinct examples of Andean people’s historical capacities for cooperation (Colloredo-Mansfeld 2009; Mayer 2002; Garces 1943) and mingas have played noteworthy roles in Andean political mobilization and social movements (Poole 2009; Rueda 1982). The shared base of minga labor has been said to constitute “a kind of human-made commons” (Mayer 2002:124), but this does not necessarily mean that they are always based on common interests (Colloredo-Mansfeld 2009:98).

Mingas were historically mechanisms of social subordination, similarly employed by the Incas (Harvey 2002; Rostworowski and Morris 1999; West 1957), Spanish colonial administrators (Poole 2009; Stern 1988), and *hacendados* (Salz 1984; Burgos 1970) to extract free labor from indigenous and peasant groups for public works and often personal profit. Far from being associated with cooperative egalitarian organization, as they often are today, minga relationships in the post-colonial hacienda era have been described as “caste-like” or “semi-feudal” (Alberti 1970; Fuenzalida 1970; Cotler 1968). With the decline of the hacienda mode of production and political economy, minga practice evolved differently in different parts of the Andes. In some places, mingas
emerged as a form of reciprocity based on repeated, voluntary, and dyadic agreements between ostensibly equal parties (Mayer 2002; Orlove 1977). In Chimborazo Province, where my research took place, the decline in the hacienda system precipitated the emergence of communal councils whose decision-making and practical capacities are almost completely underwritten by mingas. Known as “cabildos,” these village councils form the basis for relations between communities and outside actors. As will be discussed in the following chapter, the power and legitimacy of cabildos are largely derived from their ability to organize mingas.

Reciprocity is one of several related practices bound up in contested domains of social value (Gudeman 2001:89-90). Gose (1994:11-12) recognized two basic cycles of reciprocity in the Peruvian Andes: \textit{ayni}, based on egalitarian relations, and \textit{minka}, based on hierarchy. Fonseca (1974) wrote a seminal article on the different types of minga relationships, which focused on the association of asymmetrical exchange with status or power relations. Mayer (2002:18) claims that reciprocity is often asymmetrical, both materially and in terms of the power and status distinctions that are inextricably bound up in Andean reciprocal exchange. Focused empirical studies include Whitten’s (1969) study of villages in coastal Ecuador that describe how key individuals in village communities had unique access to market resources and capital were consistently able to recruit laborers to mingas from which they alone profited by means of conspicuous giving to workers’ families.

Whitten’s (1969:234) study focuses on the purposive strategies of actors in unequal power relations to gain “increasingly direct power over local sociopolitical resources, and use such power to gain indirect control over economic activities.” Village
work party leadership was rationalized as a rotating position for which anyone with accumulated prestige was eligible; in reality, leadership remained relatively constant and only a few local elites sustained the prestige that legitimized leadership. The same leaders recruited the same work parties time and again and sustained significant profit in the process. However, the workers did not explicitly concede any sustained loyalty to the work party and leader therefore had to recruit workers anew with each new project. A leader’s ability to replicate the class structure was itself a measure of his prestige, which was produced through the repeated practices of conspicuous giving to work party members and their households. Through the prestation of currency and materials and the gifting of consumption goods, the party leaders converted their economic capital into the symbolic capital of prestige, which class subordinates accumulated as such in their relations with others and thereby repeat similar conversions between economic, social, and symbolic capital, which resonated in the social worlds that took shape around them.

Blanton and colleagues (1996) called attention to the ways in which elites adapt their political and cultural strategies based on the relative stability/instability of hazard conditions but, as Jones (2010:86) points out, there must be some degree of leveling or balance in these strategies in order for elites to retain power. Cooperation mobilized by reciprocity may be a strategy employed by village leaders to maintain their power and to promote various aspects of sustainability. In his study of the cooperatives of small-scale agriculturalists in coastal Ecuador, Jones (2004:13) found that individuals with little experience in cooperatives were more likely to trust those they perceived as wealthy and that they often used wealth as a means of deciding whom to trust when a cooperative was starting up. His findings suggest that equalization of formal power relations in
cooperatives was necessary for success in collective action, even though differential benefits were accrued between classes. The wealthy often look to organize poorer villagers in order to “amass the people and interest necessary to start a cooperative” (Jones 2004:16). Some of the wealthier members of one successful cooperative expressed sympathy with poorer villagers and an interest in helping them, but they were also interested in being able to employ them as laborers when the cooperative began collective cultivation projects.

Anderson and Woodrow (1998:171) cite the case of the construction of a resettlement in the Colombian city of Armero for people displaced by the eruptions of the Nevada de Ruiz volcano in 1987. The resettlement camp was initially populated by the poorest and most marginalized of Armero, who lacked organizational experience. Representatives of the Save the Children Foundation, who administered the resettlement, were concerned that resettlers were growing dependent on aid rations, which they had hoped to scale back in favor of developing self-reliant strategies. They began looking to the wealthier and more prominent families who had resettled on their own, outside the camps. Once these elite families were recruited to work on the construction of the new village, the poorer resettlers began to work on the construction and other forms of cooperation as well. Anderson and Woodrow (1998:171) concluded that this was likely due to trust in the more prominent families, in addition to fearing that they would be excluded from benefits if they did not participate.

Yet ethnographic evidence suggests that class distinctions are inextricably bound up in minga practice, as wealthier families and individuals rely on poorer community members in proportion to the scarcity of labor, while laborers depend on the wealthier
members of the community for access to both consumption and production resources (Colloredo-Mansfeld 2009; Poole 2009; Ferraro 2004; Mayer 2002; Rappaport 1998; Mitchell 1991; Deere 1990). In surveying the patterned flow of exchanges in minga reciprocity, a generalized pattern emerges in which material resources tend to flow downward, while labor and loyalty flow from the bottom up, in spite of an explicit ideology of mingas as egalitarian associations based on either rotating or collective leadership (Mayer 2002; Mitchell 1991; Deere 1990; Whitten 1969). Cultural rules frequently dictate that minga labor must be repaid in kind (cf. Orlove 1977) but, as mentioned above, many regularly avoid this through a variety of strategies, including substituting food and feasting (Mayer 2002; Deere 1990), alcohol (Colloredo-Mansfeld 2009), household items (Harris 2000), or loans and payment (Jones 2004; Gonzales de Olarte 1994). Minga practice thus develops into a process of perpetual labor recruitment via repeated practices of conspicuous giving to laborer households, with reciprocity serving as redistribution by periodically facilitating the flow of accumulated wealth and goods from elites to commoners.

**Disasters, Resettlement, and Development: The Role of Brokers**

Several authors have called for recognizing disasters and resettlements as development problems (Adams et al. 2009; Beazley 2009; Anderson and Woodrow 1998; Cuny 1983; Cernea 1996b). One justification for this perspective is that development can increase or reduce vulnerability while disasters can impede or create opportunities for development (Oliver-Smith 2009b). Disasters may reveal social struggles and inequalities in social groups and political systems (Cuny 1983:54). Some have suggested that these inequities be targeted by integrating the goals and strategies of sustainable development
in disaster relief (Henry 2005; Zetter 2003; Anderson and Woodrow 1998; Slim and Mitchell 1992; Kibreab 1987; Cuny 1983). Another rationale is that because all involuntary displacement entails the dismantling of previous productions systems and ways of life, all resettlements must be considered development projects (Cernea 1996b:310).

This study not only examines local practices in disaster-induced resettlements, it also examines these practices in the context of the “development encounter” between communities and institutions in resettlements to study the emergent network and resource flows and must therefore necessarily address issues of power. Within political economic frameworks, power is generally defined as a relational property inherent in social interaction and derived from the ability to control and allocate relatively scarce resources (Kurtz 2001; Wolf 1990; Roseberry 1988; Bourdieu 1977). Hornborg (2001:1) importantly adds that power is not only relational and based on unequal distributions of resources, but also the distribution of risks.

Power also involves the ability to make decisions that affect others’ livelihoods (Narotzky 2005:81-82). Mosse and Lewis (2006) advance this framework for the study of power in a development context. Citing Lukes (2005), they highlight the fact that power is not only overt domination in decision-making and the direct control of resources, but also the capacity to shape agendas and decide what decisions are to be made in the first place. They highlight the role of “brokers,” powerful individuals in leadership positions within communities and institutions who set the agendas for decision-making contexts and “translate” the needs of one group to the other. Power may have its origins in control of scarce resources, but brokerage power in this necessarily derived through relationships...
with “outsiders” (the state, NGOs, etc.) and exercised in the process of defining agendas and influencing the outcomes of (often volatile or risky) decision-making processes (see also Elyachar 2002).

Resettlements are political systems involving complex negotiations between stakeholders, including institutions and multiple local actors with unequal access to both scarce material resources and political power. The destruction and loss of means of primary production through disaster, displacement, and resettlement precipitates a significant shift toward access and control of the flows of aid from state institutions and NGOs as the primary resources of political competition (de Wet 1996b:338-339). The distribution of access and control over new resource bases is a decidedly political process (de Wet 2006a:7). Social actors frequently maneuver to acquire or consolidate control of resources by pressuring institutions to honor competing claims of legitimacy and entitlement (Mosse 2005; Henry 2002; Oliver-Smith 2006, 1996; Scudder and Colson 1982).

In the immediate aftermath of disaster, class differences can appear to vanish in initial swells of altruism during a liminal period. However, reemergence tends to coincide with arrival of formal agencies, and class often factors significantly in the provision of relief (Henry 2005; Oliver-Smith 1992; Torry 1986). Relief efforts and other development projects have been implicated in the reification of dominant class, gender, and political hierarchies in several ways. In some cases, this has involved granting elites preferential access to ancillary, micro projects, while in others, elites control communication between institutions and communities, channeling both aid and project inclusion to favor their respective clientele (de Wet 2006; Barabas and Bartolomé 1996;
Chairetakis 1991; Salmen 1987; Partridge et al. 1982). For minga leaders, resettlement presents opportunities to advance control of political affairs, but their ability to do so is expected to be tightly bound to their ability to allocate scarce resources to the group through reciprocity.

It is not enough to interrogate power from the perspective of the “state versus community” model (Beazley 2009). Attention to the power of the state and NGOs over communities is important, but by itself not sufficient to theory or application and anthropological inquiry increasingly engages mid-level connections between local and global processes (Knauft 2006). In development contexts, people do not only exert power of their own will and accord, but also through unique ties to outsiders such as NGO workers, state officials, and patrons (Mosse 2005). It is therefore important to examine the roles of brokers and intermediaries that operate between local communities and extra-local institutions (Knauft 2006; Merry 2006; Lewis and Mosse 2006; Mosse 2005; Elyachar 2002). In order to anticipate the ways in which powerful brokers might emerge through the practices of Andean reciprocity in my research sites, it is important to consider how the exercise and reproduction of power has been treated studies of Andean reciprocity.

Political negotiation has itself been compared to a type of reciprocal exchange underwritten by the deliberate inclusion or exclusion of actors in exchange relations (Mayer 2002; Spedding 1998; Schweizer 1997). It is therefore reasonable to anticipate that those individuals who exercise power through reciprocal exchange and mingas are more likely than other to act as brokers between their communities and outside agencies and therefore more likely to access and control a greater degree of relief and development
resources. Group dynamics in putatively participatory development projects have a tendency to favor the interests of those who are already powerful (Cooke and Kothari 2001:8) and to reify existing inequalities and occasionally produce new ones (Knauft 2006:415). In his study of the decades-long period of recovery from the 1970 earthquake in Peru, Doughty (1986:50) found that powerful individuals in disaster-affected communities constantly lobbied and manipulated state bureaucrats and political leaders for support for their local relief and development projects. In his study of World Bank development projects in La Paz, Bolivia, and Guayaquil, Ecuador, Salmen (1987) found that community leaders controlled communication between project administrators and beneficiaries, steering projects to the advantage of the leaders.

**Gender, Reciprocity, and Power in Disaster Relief and Resettlement**

Gender is an important factor in power relations everywhere and specifically important in disaster and resettlement contexts because it has important implications for the distribution of scarce resources and therefore recovery or wellbeing. Cultures and social groups are often divided by class and ethnicity and they are always somehow divided by gender (Nagengast 2004:113). Gender-based inequalities contribute to vulnerability in disasters and resettlement (Willinger 2008; Wisner et al. 2006; Bolin et al. 1998; Hewitt 1995; Enarson and Morrow 1998). There is significant evidence that women and female-headed households suffer more than men in disasters (Dasgupta et al. 2010; Willinger 2008; Enarson and Morrow 1998; Bolin et al. 1998; Downs et al. 1993; Shipton 1990), especially in terms of mental health (Baker et al. 2005). Because there is a need to examine the specific ways in which social inequalities inhere in the unequal distribution of resources and risk in society (Wisner et al. 2006), it is important to avoid
homogenizing disaster-affected people by gender in disaster and resettlement studies (Bolin et al. 1998:42). This study has so far considered the unequal distribution of risk and power in terms of access and control of scarce resources (a class-based model of power) in an ethnically and culturally homogenous (see chapter 3) disaster and resettlement context, but it remains to do so in terms of gender.

Disasters and group-based resettlement schemes not only tend to empower social and economic elites and manipulate allegiances, but also to reify gendered hierarchies (Cernea 2003, 1997; Koenig 2001; Enarson and Morrow 1998). New opportunities post-disaster and post-resettlement tend to fall along preexisting restrictions of gender roles and expectations (Wisner et al. 2006:11; Shepler 2002; Sommers 2001; Anderson and Woodrow 1998; Ferguson and Byrne 1994) and gender has been identified as a key factor affecting disaster recovery (Dasgupta et al. 2010; Das 1997). Several authors have found that gender is a central variable in explaining the distribution of stress in resettlement (Sherman and Muldinwa 2002:11; Palinkas et al. 1994; Cernea 1990; Harrell-Bond 1986; Scudder and Colson 1982). Gender inequality has been found to undermine family cooperation in slow onset disasters (Shipton 1990) and to affect the distribution of scarce resources post-disaster (Watts 1991). In a recent study of gender dynamics of recovery from disasters and resettlement conducted in Penipe (a resettlement site associated with the present study), women were found to endure increased burdens and stresses in post-disaster resettlement (Schuyler 2011).

In terms of Andean reciprocity and minga practice, women’s roles are somewhat ambiguous. Nonetheless, there may be important gendered dynamics of risk to minga practice in disaster and resettlement contexts, specifically in terms of wage labor. Gender
is associated with differential access to resources (Deere and Leon 2001; Harris 2000) and wage employment has been dominated by men while women’s participation has been historically marginal in the Andes (World Bank 2012). Thus, if wage labor participation is expected to be negatively associated with minga participation, we might expect women to participate in mingas more than men because they assume household responsibilities for minga participation. Lacking data specifically on the gendered vulnerability of increased residential distance in resettlement, we can nonetheless posit that, because women tend to access less resources post-disaster and in resettlement (Wisner et al 2004:11; Enarson 2001), they will have less influence in determining their resettlement sites and will therefore be more likely than men to resettle at greater distances from their kin and neighbors.

More generally concerning to women’s participation in reciprocity, it is difficult to discern a pattern from the literature. Cross-culturally, women have generally been found to engage in more reciprocal exchange relations than men (Yan 2005; Komter 1996; Susser 1982; Lomnitz 1977; Stack 1973). However, studies of informal social support exchanges in disaster contexts tend to find that men give and receive more support outside their kin networks than do women (Drabek 1986; Hurlbert et al. 2001). In a study of social support exchanges among non-relatives in the disaster-induced resettlement community of Penipe, Ecuador (a site of the current study), Burke (2010) found that men both gave and received more social support (material, informational, emotional, and work opportunities) than women. Since a recent study in one of the research sites found that women engage in less reciprocal exchange relations than men, it would have been reasonable to posit that findings for the present study would be
consistent. However, because men are expected to engage in wage labor more than women (see above), it is also reasonable to expect men to engage in less reciprocity than women.

Turning to political contexts, while some have found that the transition to democracy in Ecuador in the late 1970s empowered indigenous groups, women, and Afro-Ecuadorians to successfully demand their corporatist inclusion through social movements (de la Torre 2006, 2003, 2002; Santana 2004; León 1997), others have noted that recent trends have marginalized women in local politics (Colloredo-Mansfeld 2009). In his study of village politics in Otavalo, Ecuador, Colloredo-Mansfeld (2009) observed a trend of village councils being dominated by males who often had to contend with vocal female dissenters. He attributes this to an increased interaction between international donors, non-governmental organization, and village councils reinforcing one another’s power in ways that have favored male participation and voice over women’s. The recessions of the 1980s resulted in the return of many men from urban centers to their native villages and many sought increased political domination through serving on village councils, which afforded them privileged access to development projects (Colloredo-Mansfeld 2009:102). In rural village council meetings in Ecuador, differences of class, education and, most notably, gender determine actors’ authority and their ability to influence decision-making, and resistance to council decisions can be met with coercion and threats to terminate access to basic services are common (de la Torre 2006:252). It is therefore reasonable to expect that brokerage (i.e., unique ties to outside organizations) will be male dominated and women will have less influence in decision-making in village politics.
Finally, disaster recovery efforts often fail to address women’s issues (Enarson 1998; Enarson and Morrow 1998). Economic recovery programs tend to provide compensation for lost land and wages (male dominated economic strategies), while leaving uncompensated paid, home-based economic activities, such as childcare, sewing, and laundering (female dominated economic strategies) (Enarson 2001). Because of this trend, I expected women to access less aid and development resources than men in my study sites.

In sum, while there are justifications for gendered dynamics in the core study hypotheses, the gender dynamics of others are less clear. Additionally, because this study is designed to examine exchange between households and not within households (see chapter 4), I chose to address potential gendered dynamics in the reciprocal exchange relations by controlling for gender in lieu of formulating specific additional gender-based hypotheses.

**Summary of Framework**

By studying the risks posed to forms of reciprocity in resettlement, we can potentially learn a great deal about the ways in which the effects of disasters and resettlement affect social organization in affected communities and perhaps how they interact with other risks and processes. Cernea’s (2003, 2000) risks and resettlement model identifies several risks faced in resettlement, all of which are essentially risks to individuals and households, except for “social disarticulation,” which obtains at the community level (de Wet 2006b). Cernea’s “social disarticulation” is the direct outcome of resettlement policy and practice that breaks up social groups by placing their members in separate resettlements, thereby inhibiting their capacity to recover. By including the
additional variable of wage labor employment, this study admits a greater level of complexity to research on the risks posed by disasters and resettlement to local forms of social organization and reciprocity that articulates with wider social and political economic processes. Displacement of social support relations is a regular consequence of disasters and resettlement. By choice, necessity or force, kin and other relations move to separate resettlement communities or migrate seeking wage-based economic opportunity. This is almost always credited as significantly reducing, straining or completely eliminating participation in mingas and reciprocal exchange (H1). Testing such an analytical assumption about the opposition between tradition and modernity may prove “an analytic red herring” (Faubion 2000:262), but it nonetheless enables an examination of the inherent complexities of the outcomes of disaster-induced resettlements.

This study also seeks to examine the asymmetries of Andean reciprocal exchange relations and practices for their implications in the production of political power and the distribution of scarce aid and development resources in disaster-affected communities and disaster-induced resettlements. The first step in the direction is to examine the ways in which mingas are organized in the study sites. Prior research has identified a practice whereby powerful and wealthy leaders repeatedly recruit minga laborers through conspicuous giving of material items, while the leaders access all or most of the benefit of the minga labor. In this study, this will be examined by explicitly focusing on the ways in which reciprocal exchange relations factor into minga participation. Examining the extent to which minga participation is positively correlated with the receipt of material items in exchange (H2) enables us to look beyond aseptic and culture-free notions of
“social support” and “mutual aid” and investigate the ways in which power relations bound up in mingas and reciprocal exchange relations.

This study also goes further by examining the ways in which reciprocal exchange relations are implicated in forms of political power—specifically, brokerage power, or access and control of scarce aid and development resources through unique ties to outside organizations, and the direct influence over decision-making processes in each site. Finally, this study will examine the extent to which external aid and development resources are distributed based on reciprocal exchange relations in each site. This can potentially improve understanding about how political power is produced and maintained in these sites and the ways in which reciprocal exchange practices are implicated in the distribution of resources in disaster-affected and resettled communities. All of the proposed hypotheses for this study can inform our understanding of the ways in which social organization and reciprocal exchange practices are affected by disasters, displacement, and resettlement and they ways in which reciprocal exchange practices might simultaneously influence political power and the distribution of resources in disaster recovery and resettlement. The proposition that political power is based on access and control over scarce development resources and this power is maintained and exercised through reciprocal exchange networks and unique ties to sources of aid and development resources (H3) is an opportunity to take this analysis one step further to explore the extent to which "social stratification is the main transmitter of extra-local influences" (Schweizer 1997:746). This study also examines the gender dynamics in each of these study hypotheses to explore for ways in which gender might affect or be affected by reciprocal exchange practices, political power, and the distribution of scarce aid and
development resources. Focusing on the tension between cooperative, mutual support practices and unequal power relations in mingas of two disaster-induced resettlement communities in highland Ecuador is important also from an applied perspective because this dynamic might affect resettled individuals' access to disaster relief and development resources.
CHAPTER THREE: ETHNOGRAPHIC SETTING

Introduction to Sites

The majority of this study took place in two villages in the Andean highland province of Chimborazo, Ecuador, in the second half of 2011, although some of the ethnographic data for the study I also gained while working as a fieldworker for an NSF-funded project in the same study sites in 2009 (see chapter 1). The first site is a village named Manzano, whose residents were displaced and resettled as a result of the 1999 and 2006 eruptions of the Mt. Tungurahua stratovolcano. At the time of research in 2011, although the majority of Manzano villagers had been resettled into one of three resettlement villages, Manzano continued to function as a village, with many residents continuing to live and grow crops and raise animals in the village largely due to a lack of economic resources in the resettlements. The second site, Pusuca, is a resettlement community of 45 homes built by an Ecuadorian non-profit, the Esquel Foundation, and the state and national governments. Pusuca is home to 40 households displaced from villages near Manzano due to the 1999 and 2006 eruptions of Mt. Tungurahua.

These two sites were selected because they are both known to organize regular cooperative labor parties (mingas) through village councils but also because they differed in key respects. The resettlement village of Pusuca includes land for crops and animals for each resettler household while the majority of Manzano villagers were relocated to resettlements with no land, productive resources, or employment opportunities (although five households in Pusuca are originally from Manzano). Secondly, while Pusuca lies
well outside Mt. Tungurahua’s high risk zone, Manzano lies in the shadow of the volcano and its people must contend with a chronic hazard situation that places their animals, crops, property, and health at risk. Finally, each village is tied to different governmental and non-governmental institutions and is governed in distinct ways that will be discussed further below. In what follows, I describe the broader historical and political economic context of these two sites, with a focus on the cascading impacts of disaster and resettlement, followed by detailed descriptions of each site, with attention to the political and reciprocal exchange practices that are of interest to the study.

Location

Manzano and Pusuca are both located in Penipe canton (county), which lies in the central Andean cordillera in northwest Chimborazo Province. Penipe consists of six rural parroquias (parishes) and one urban parroquia, the eponymous central town of Penipe. Penipe is located roughly 22 kilometers from the city of Riobamba and approximately 150 kilometers south of the capital city, Quito. Canton Penipe is one of the smaller cantons in Ecuador, with a total population of 6739 as of 2011 (INEC 2011). Most of the population (69%) is concentrated in the rural areas, while the remainder lives in the central township, Penipe (see table 1). The altitude of Penipe Canton varies from 2280 to 5424 meters above sea level. The southern extreme of Penipe Canton is marked by the dormant volcano, El Altar, and its northern extreme is marked by the active stratovolcano, Mt. Tungurahua, through which runs the border between the provinces of Chimborazo and Tungurahua. Three of Penipe’s six rural parishes—Bilbao, Puela, and El Altar—form the southwest flank of Mt. Tungurahua in the high risk zone for ashfall, lahars, pyroclastic flows, lava, and volcanic tremors. Manzano is a village of 54
households in this volcanic high risk zone around Mt. Tungurahua in the northwest of the rural Parroquia Puela. Pusuca is a resettlement community of 40 households that sits eight kilometers south of Penipe Township and well outside the volcanic risk zone (see figure 1). Resettlers in Pusuca are primarily from Puela Parish, although there is one household from Bilbao, another from El Altar, and five households are from Manzano.

![Figure 1. Map of Study Sites and Region](image)

Most residents of Canton Penipe are small-holding agricultural producers. Survey data from the study with which I assisted in 2009 in Penipe (n=721) found most adults (69%) are primary producers of cultvars or animals (47% landholdings < 1ha, 71% < 2ha), and less than half of all households (40%) report wage laborers. A significant cohort
(20%) is landless dependents of local landlords for access to productive land. Nearly half (47%) of households send some share of their crop yields to market. It is possible that resettlement has prompted increased market production, but while most (79%) report some crop sales prior to resettlement, soil degradation from volcanic ash has reduced production to meager fractions of prior levels (see also Tobin and Whiteford 2007).

**Table 1. 2011 Population & Elevation – Penipe Canton**

<table>
<thead>
<tr>
<th>Population</th>
<th>Elevation (Meters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Penipe Township</td>
<td>1007</td>
</tr>
<tr>
<td>Parroquia Penipe</td>
<td>2089</td>
</tr>
<tr>
<td>Rural Sector</td>
<td>4650</td>
</tr>
<tr>
<td>Parroquia El Altar</td>
<td>1265</td>
</tr>
<tr>
<td>Parroquia Matus</td>
<td>991</td>
</tr>
<tr>
<td>Parroquia Puela</td>
<td>622</td>
</tr>
<tr>
<td>Parroquia Bayushig</td>
<td>1101</td>
</tr>
<tr>
<td>Parroquia La Candelaria</td>
<td>475</td>
</tr>
<tr>
<td>Parroquia Bilbao</td>
<td>196</td>
</tr>
<tr>
<td>Total – Canton Penipe</td>
<td>6739</td>
</tr>
</tbody>
</table>

Source: INEC 2011

There are two primary ecological zones in Penipe that correspond to altitudinal ranges, allowing for a somewhat diverse array of cultivars. These ecological zones can be divided into lowland regions (2280-2500 meters above sea level) and highland regions (2500-3200 meters above sea level). Smallholders in the lowlands produce mostly corn, beans, potatoes, fruit trees, and small livestock, such as guinea pigs, chickens, and rabbits. Highland production is largely concentrated on pasture and cattle-raising for dairy and meat, especially in the area around the volcano, whereas elsewhere in Chimborazo people do cultivate potatoes and other crops in the highlands. Household landholdings in the lowlands are typically much smaller (1-3 hectares) than highland landholdings (3-10 hectares), which require more territory for grazing.
History of the Region

Both research sites for the present study are in Penipe Canton, whose southern extreme and northern extremes are marked by the dormant volcano, El Altar, the active stratovolcano, Mt. Tungurahua, respectively. Mt. Tungurahua sits astraddle the border between the Chimborazo and Tungurahua Provinces and three of Penipe’s six rural parishes—Bilbao, Puela, and El Altar—form the southwest flank of Mt. Tungurahua in the high risk zone for ashfall, lahars, pyroclastic flows, lava, and seismic tremors. The effects of the recent eruptive phase of Mt. Tungurahua, which began in 1999, have been the subject of recent anthropological study (Whiteford and Tobin 2009). The Mt. Tungurahua stratovolcano is one of 21 active volcanoes in mainland Ecuador, which have been created along with the greater Andean cordillera by the subduction of the oceanic Nazca plate by the South American plate (Latrubesse 2010). The 55 volcanoes of Ecuador and 19 of Colombia constitute the Northern Volcanic Zone of the Andean volcanic belt that is part of the larger Pacific Ring of Fire, a series of oceanic trenches and volcanoes around the Pacific Ocean (Latrubesse 2010). The gradual subduction of Pacific Ocean tectonic plates against the South American continental plate accounts for the prevalence of earthquakes and volcanic eruptions that have significantly influenced South American and Ecuadorian history. Some such events worth noting are the 1797 earthquake in Riobamba (just 22 kilometers from Penipe Canton, the site of the current research project), which resulted in nearly 40,000 fatalities and the complete destruction of the city, and an earthquake in the northern Ecuadorian town of Ibarra in 1868 likewise caused nearly 40,000 fatalities (Latrubesse 2010). The 1970 Ancash earthquake in Peru resulted in roughly 70,000 fatalities between Peru and Ecuador and has been the subject
of several anthropological studies (Oliver-Smith 1979, 1977). The eruption of the Nevado del Ruiz volcano in Colombia in 1985 caused approximately 23,000 fatalities and has also generated anthropological interest (Zeiderman and Ramirez 2010).

The region that is today Penipe was settled by the Puruhá indigenous group between 500 and 1500 ce (Freire Heredia 2005). Though much of the history of the Puruhá in the region is poorly attested, it is said that they successfully resisted colonization by the Incas through alliances with the Duchicela and by retreating into the remote highlands of what are today the cantons of Guano and Penipe (Freire Heredia 2005). Here they planted grains and raised livestock, which were traded in a network of markets that dotted the region. By the time the Spanish reached what is today Penipe in 1563, the Puruhá are said to have fled further east to the Amazon to resist being conquered (Haro 2005). This historical claim is frequently cited in the region as an explanation for the curious lack of indigenous communities in Penipe, although the larger Chimborazo Province has one of the greatest concentrations of indigenous populations in the nation.

As elsewhere in Latin America, the Spanish created a hacienda economy in and around the riverine area what is today Riobamba and extending out as far as Penipe. These plantations relied on indigenous corvée labor, which is said to have been imported from surrounding areas after the flight of the Puruhá, and were administered by Spanish lords (hacendados). This economy endured in the region until well after independence in the mid-nineteenth century, and indigenous and mestizo peasants worked the lands of wealthy hacendados in exchange for access to small plots of land on which to grow subsistence crops well into the twentieth century. Haciendas in the region that is now
Penipe sustained significant damage as a result of eruptions of Mt. Tungurahua in 1773, when the region was evacuated (Hall et al. 1999).

Relation of the State to Local Polities

Not long after Ecuador achieved its independence from Spain in 1822, Penipe was incorporated as a parroquia (parish) of Canton Guano in 1845 (Haro 2005). The long nineteenth century was marked by instability and a rapid succession of largely authoritarian leaders (Deas 1985). During this time, Penipe grew as a satellite market center for the haciendas in the region, although the region was again devastated by eruptions of Mt. Tungurahua in 1886 and another extended period of significant eruptions from 1916 to 1918 (Hall et al. 1999). Between and after military coups in 1925 and 1931 and a brief civil war in 1932, short-lived periods of democratic rule in Ecuador produced reforms that facilitated the growth and development of Penipe and other rural regions (Deas 1998; Ayala Mora 1999). Ecuador’s economy was somewhat stabilized by the establishment of a central bank in 1926, which assumed central authority for issuing national currency (the sucre) and thereby increased state revenue and ushered in a period of growth in transportation and communications infrastructure (Ayala Mora 1999). Shortly thereafter, the American stock market crash in 1929 had devastating effects on the Ecuadorian export economy and the hacienda system (Ayala Mora 1999).

One of the most noteworthy reforms later in this period was the 1937 Ley de Organización y Régimen de Comunas, which was designed to dismantle the hacienda economy. This new legislation granted members of any community with at least 50 households to rights to plots of land they had worked for more than ten years, so long as they formally incorporated into comunas (villages). Comunas were to be governed by
*cabildos* (village councils). Cabildos were established as local governing bodies but also as village representatives to the state. Interestingly, although many peasant and indigenous groups incorporated as comunas in the 1930s and 1940s, many chose not to, as the Ley de Comunas was increasingly recognized by village leaders as an extension of state power over rural peasant and indigenous populations (Becker 1999:535). As shown by archives of the Ilustre Municipio de Penipe, which was still then a parroquia of Guano Canton, incorporated its first two comunas in 1938, followed by another ten between 1946 and 1960 for a total of twelve incorporated comunas and began to serve as a satellite market for a growing number of smallholders in the region.

As such, the development of local political jurisdictions and traditions has been impacted by the agrarian reforms that transferred land from haciendas to peasants. Additional agrarian reforms were passed in 1964 and 1974 by the military junta that ruled Ecuador from 1964 until civilian rule was reestablished in 1979. The military regimes of this period were concerned with agrarian and other reforms in order to hasten the demise of the hacienda system and modernize the Ecuadorian economy (Ayala Mora 1999; Becker 1999). These reforms were an attempt to resolve considerable disparities in land distribution, as several studies in the 1950s had found that a small minority (just over 2 percent) of large landowners controlled more than 64 percent of arable land, while only seven percent of land in Ecuador was owned by individuals or households with five or fewer hectares (Breton 2008:591). To carry out this reform, the state purchased land from large landowners at a premium and then sold the land to peasants and indigenous groups at a greatly reduced rate (Breton 2008). Though these reforms by no means conclusively resolved systemic disparities in land distribution, they did foster a renewed interest in
comuna incorporation in Ecuador in the 1960s that continued through the 1990s. After the 1964 reforms, there was a brief burst of comuna incorporation in Penipe, with one in 1965 and four more, including the research site of Manzano, in 1973.

Import substitution was an economic development strategy employed by several Latin American countries after the mid-20th century. It essentially entailed the promotion of domestic production for domestic markets in an effort to minimize the economic volatility associated with export economies (agriculture and raw materials) vulnerable to shocks and fluctuations in the global system (Bulmer-Thomas 2003). Ecuador began its import substitution policies in late 1950s by establishing an institutional system to promote industry (Moncada 1980; Ayala Mora 1999). This was part of a general transition to capitalism as the dominant mode of production in Ecuador, one that transformed the landholding elites of the hacienda system into an agricultural bourgeoisie (Ayala Mora 1999:703; Breton 2008). As import substitution accelerated in the 1960s, so too did peasant protest movements to confront land concentration, contributing to the military coups of 1963 and 1972, which in turn implemented agrarian reforms. The agrarian reforms on 1964 had contradictory effects. They spelled the end of the hacienda system and helped the transition to capitalist agrarian production, while having almost no effect on land concentration (Breton 2008). Import substitution was expanded in the late 1960s by subsidizing domestic industrial development, blocking certain imports, and levying significant taxes on exports (Ayala Mora 1999:708-709). Peasant gains were decidedly pyrrhic, as the agrarian reforms to support smallholder production (minifundia) granted only small plots of land and included no credit finance system or extension support (Ayala Mora 1999). This contributed to a reduction in agricultural production, a
near crisis-level increase in prices, and the exponential growth in rural-urban migration for wage labor (Ayala Mora 1999). The glut of migrant workers served capitalist interests, as industries were unable to absorb the worker population and thus able to keep wages low (Ayala Mora 1999). The capitalist class remained politically marginal during military rule in the 1960s and early 1970s, but gained power in the late 1970s as the military junta was reconfigured under political and economic pressure and began several regressive policies and practices, including passing laws that guaranteed the property of rural entrepreneurs and the violent suppression of worker movements (Ayala Mora 1999:16).

The Ecuadorian economy grew rapidly in the 1970s due to some of the limited gains of the import substitution period, growth in banana exports, and a boom in oil exports brought on by new discoveries and the OPEC oil embargo (Ayala Mora 1999). The country returned to civilian rule in 1979, but the country faced severe economic crises by the mid-1980s, largely as a result of a bust in the petroleum market and severe floods and droughts in different parts of the country as a result of climate changes and the warm ocean current “El Niño” (Sanchez-Triana and Quintero 2003:398-399). In 1987, a massive earthquake in the northern town of Ibarra had devastating impacts on the economy and on oil exports (Sanchez-Triana and Quintero 2003).

Political Decentralization and Community Development

After the return to civilian rule in 1979, two of the most significant developments in Ecuador in the 1980s were decentralizing tendencies, including the massive growth of municipal incorporations and decentralization programs (Martínez 2003b:164; Cameron 2010; Larrea 1999) at the same time as the proliferation of peasant and indigenous
political movements nationwide (Chiriboga and Jara 2004). Although the process of comuna incorporation slowed in Penipe in the 1980s, with only one in 1983 and another in 1989, Penipe broke away from Canton Guano and incorporated as the seventh canton of Chimborazo Province in 1984. Today it is one of the smallest municipalities in the country (Haro 2005; INEC 2011). The central town, Penipe, formed the “urban” administrative center for the canton’s six rural parroquias—Bilbao, Puela, El Altar, Matus, Bayushig, and La Candelaria. The *cantonización* of Penipe was part of a national wave of new municipal incorporations; since 1985, 86 new cantons have been formed to bring the national total to 226, or an increase of 61 percent (INEC 2011; Martínez 2003b:164; Larrea 1999; Asociación de Municipalidades Ecuatorianas 1999).

Relatively rural municipal governments like Penipe—though they constitute the urban administrative center—have historically focused on small ad hoc public works that have largely excluded the rural periphery of each canton (Cameron 2010), and the proliferation of these rural cantons/counties has been problematic in several ways. First, governance has typically been weak and dominated by clientalism and paternalism (Ojeda Segovia 1998; Rosales 1989). Larrea (1999) refers to the growth of Ecuadorian cantons as a spurious urbanization that increasingly creates “municipal atomization” and the proliferation of administrative bodies of reduced scope and viability. Most of these municipalities are in fact limited administrative centers for rural regions with little in the way of urban economy or development impulse/capacity. As a result, they do not have sufficient budgets for their own administrative activities and rely heavily on budget allocations from the national government. These factors, combined with poorly trained
staff, have complicated and inhibited reform processes as well as any transitions toward more inclusive models of governance in Ecuador (Cameron 2010).

Beginning in the mid-1980s, peasant organizations took shape around government initiatives and unrest at the grassroots level (Chiriboga and Jara 2004). Among the many social movements that have taken shape since the 1980s, two large umbrella organizations stand out: *La Confederación de Nacionalidades Indígenas del Ecuador* (CONAIE), Ecuador's largest indigenous organization, formed in 1986, and; *Pachakutik* (Pluri-National Pachakutik United Movement), a political party formed in 1996 in collaboration with CONAIE and other indigenous and non-indigenous peasant organizations (Sanchez 2006; Chiriboga 2004). Both are considered formidable organizations in Ecuadorian politics today, owing to their successful and repeated mobilization of peasants and indigenous groups in order to press for political and economic reforms, the recognition of indigenous identities and rights, and resistance to neoliberal reforms (Sanchez 2006; Chiriboga and Jara 2004; Lopez Romero 2003). Protests, while often quite heated, have tended to take the form of large demonstrations of indigenous and peasant cultural identity, including dance and song in traditional dress, which on several occasions significantly disrupted business and transportation in Quito and other major cities (Sanchez 2006; Chiriboga and Jara 2004; Lopez Romero 2003). Several protests succeeded in the demands of indigenous and peasant groups to present their proposed reforms in discussions with government leaders, as well as significant land grants to indigenous organizations (Lopez Romero 2003; Chiriboga and Jara 2004). These movements, while significant at the provincial and national level in bringing
indigenous groups into the political process, did little to integrate the rural mestizo smallholders, such as those in Canton Penipe.

The demonstrations resulted in the abandonment of controversial initiatives, such as the Agrarian Reform Law of 1994 and various World Bank projects and IMF loans (Sanchez 2006). Beginning in 1996, Pachakutik Party candidates have continued to be elected to several local and congressional seats and, in collaboration with CONAIE, have been instrumental in the drafting of a new and highly contested federal constitution that explicitly recognizes indigenous identity and rights (Lopez Romero 2003; Chiriboga and Jara 2004). When a financial crisis, brought on by external shocks to export economies, hit Ecuador in the late 1990s, rapid inflation led to the abandonment of the national currency, the sucre, and the adoption of the US dollar in 1999 (World Bank 2004). CONAIE and its allies were highly opposed to dollarization and, when then-President Mahuad made the plan public in January 2000, large groups of peasants arrived in Quito from the highlands where they were joined by students, military personnel, and other local resident in disrupting commerce and city traffic (Sanchez 2006). Although the sucre was ultimately abandoned for the dollar, the sustained protests led to the ouster of President Mahuad, who was replaced by a provisional government until Lucio Gutiérrez was democratically elected three months later (Sanchez 2006). Gutiérrez would serve only two years before his policy decisions were met with popular protests by the same organizations that had been responsible for his initial success (Chiriboga and Jara 2004). But again, the indigenous movements were not particularly influential in Penipe in any direct way because, unlike the other rural cantons of Chimborazo Province, Penipe does not have any indigenous communities. However, these movements had tremendous
impact nationwide and facilitated the rise of populist politicians, such as President Rafael
Correa in 2006, as well as charismatic indigenous political leaders in Chimborazo
Province.

The effects of the expansion of decentralization programs have been felt in places
like Penipe in several ways. The rise of indigenous movements and leaders in
Chimborazo has resulted in a significant acceleration of decentralization programs and
participatory governance reforms (Cameron 2010; Martínez 2003b), a proliferation of
non-governmental organization (NGO) projects (Breton 2001), and the emergence of
mingas (cooperative work parties) as instruments of development in the region (Cameron
2010). Since the 1990s, Ecuadorian development initiatives have focused on locally-
derived, need-based development projects, collective action of the poor, and state and
NGO intervention (de Janvry and Sadoulet 2000:13; Martínez 2003b:167). Rural cantons
like Penipe have focused a great deal on the creation of local development plans with
NGOs and the establishment of participatory plans with the provincial councils, juntas
parroquiales, and the cabildos (cf. Cameron 2010; Martínez 2003b; Breton 2001). These
programs rely heavily on voluntary minga work parties as a means of expanding limited
budgetary capacities for the completion of roads, irrigation canals, and potable water
systems in Penipe and throughout Chimborazo (cf. Cameron 2010). While development
plans have participatory values, they have not developed concrete micro-regional
strategies, have not taken into account the local ties to global processes and institutions,
and neither is there any focus on issues of land and wealth concentration (Martínez
2003b:168). Some authors have claimed that the state attempting to convert cantons into
“mini welfare states” but with no plan for developing production (Itturalde 2000).
In the 1990s, Penipe Canton underwent another growth spurt in comuna incorporation, with one in 1992, four in 1994, and another in 1995 (archives of the Ilustre Municipio de Penipe). Beginning in the late 1990s, and accelerating under the Correa administration, the federal government has attempted to resolve persistent issues with weak and corrupt municipal governments by instituting programs to facilitate modernization and administrative decentralization (Cameron 2010). A landmark development was the creation of juntas parroquiales rurales (rural parish councils) in the constitution of 1998 and the 2000 Ley de Juntas Parroquiales (Martínez 2003b:162), which were established to grant more democratic decision-making power to rural parishes and villages. These bodies were created to establish a federation of cabildos in each of Penipe’s six rural parroquias, with the intention of better coordinating funding, projects, and administration between cabildos in each parroquia.

Administrative decentralization is intended to be a participatory and therefore more inclusive reform process that will facilitate rural development (Mejia Acosta et al. 2006; Martinez 2003b; Cameron 2010). Critics have pointed out that socioeconomic power relations remain highly unequal (Cameron 2010; Schodt 1987) and dominated by persistent problems associated with clientalism, populism, corruption, instability, and economic crises (Cameron 2010:4). Moreover, municipal governments like that of Penipe, along with the juntas parroquiales, are little more than administrative centers for rural regions with little in the way of urban economies, so they therefore do not have sufficient budgets for their own administrative activities and, consequently, rely heavily on budget allocation from the federal government. In Penipe, accusations of favoritism and clientelism in government have been common. Succeeding mayors, members of the
municipal council (*Consejo Cantonal*), and members of the juntas parroquiales were commonly accused of steering funds and other resources to their client bases, while excluding others. These issues mostly focus on transportation (roads, bridges) and water (potable, irrigation) infrastructure, although after the 1999 and 2006 disasters, accusations of corruption and embezzlement were common as aid flowed from the state and both domestic and multinational NGOs.

*Recentralization and Community Development*

As of 2011, the inhabitants of Penipe and the rural regions of Ecuador continue to focus primarily on agricultural production, although many find land unavailable or else struggle to produce on low-productivity land (Sanchez-Paramo 2005:3). As is the case throughout much of the Andean region, and in spite of a renewed import substitution industrialization, Ecuador’s economy continues to be primarily driven by natural resource extraction and export (Hausmann and Klinger 2011), which makes it particularly vulnerable to global market fluctuations and natural disasters within its borders. Revenue from oil exports alone counts for more than 60 percent of Ecuador’s 17.4 billion dollar per year export economy (International Monetary Fund 2012). The remainder is generated by the export of bananas, cut flowers, shrimp, cacao, coffee, hemp, wood, and fish (Hausmann and Klinger 2011). Peasant access to land and housing remains marginal (Breton 2008) and in the primarily indigenous highland region landownership is highly concentrated, with less than three percent of owners holding 50 percent of all land (World Bank 2003b:398). Legislation for agrarian development and land reform in the late 1990s has failed to affect this dynamic in any significant way, largely due to the fact that there is no rural land registry, and therefore more than 90 percent of rural farmers continue to
Unequal land distribution is frequently cited as a root cause of the popular and largely indigenous social movements that took place throughout Ecuador in the 1980s, 1990s, and early 2000s (Cameron 2010; Breton 2008; Brooke 1991). Ecuador outpaced its Andean neighbors in the provision of both improved drinking water and sanitation to its rural populations, ensuring access to an estimated 91 percent of the rural population for the former, and 72 percent for the latter (PAHO 2008:10). Ecuador is smaller than its Andean neighbors and as of 2011 per capita (PPP) income ($8,492) was significantly lower than that of Colombia ($10,249) and Peru ($10,062), a disparity that emerged since 2007 when there was relative parity between these countries (International Monetary Fund 2012).

The election of socialist President Rafael Correa in 2007 ushered in a renewed period of reform and public spending on infrastructure. Correa became the most popular democratically-elected president in modern Ecuadorian history by forging alliances with key peasant and indigenous issues. Correa declared Ecuador’s debt to foreign lenders illegitimate and has implemented economic and social spending policies that have contributed to a reduction in poverty and unemployment and increased transportation, irrigation, and potable water infrastructure in the rural regions. In addition to presiding over the drafting of a new constitution, Correa’s administration has also confronted the decades-old process of decentralization of government with a proliferation of new ministries and reforms of local governing institutions. This process of recentralization has expanded executive power while provincial-level and local governing bodies continue to promote decentralization. Correa’s administration began to decline in popularity after a
presidential and constitutional referendum in 2007 sparked increased tensions with the congress. An attempted coup in September 2010 was followed by a crackdown on the press that has given rise to further criticism. In the wake of the 2006 eruptions of Mt. Tungurahua in Chimborazo and Tungurahua Provinces, Correa toured the area and pledged his administration’s support for several recovery initiatives.

As a result of these recent trends, local development in Penipe increasingly involves three distinct strategies that are often pursued in concert with one another. The first is to appeal to ministries of the federal government to fund local projects. This strategy is mostly pursued for education and transportation infrastructure projects, though it also includes public health campaigns. The second strategy is to pursue funding and support from the Provincial Council of Chimborazo, but this is often limited to the narrow purview of the annual participatory budgeting plan. This program grants funds to the municipal government for potable water, irrigation, roads, and environmental projects and is carried out under the banner of the “minga por la vida” (minga for life) program, which ties project funding to volunteer citizen cooperative labor participation. In Penipe, the municipal government sub-grants these funds to a different parroquia each year based on plans proposed by cabildos and juntas parroquiales in each parroquia. The third strategy is to apply for funding from non-governmental organizations (NGOs) and foundations for economic development projects. The result has been a proliferation of micro-development initiatives supported by a local NGO, CEBYCAM-CES, global institutions such as the World Bank, and several Ecuadorian NGOs based in Quito. The federal government also formed Secretaria de Los Pueblos, Movimientos Sociales y Participacion Ciudadana (Department of Towns, Social Movements, and Citizen
Participation, or SPMSPC) in 2011, which works to connect local communities to state agencies and non-governmental organizations and programs that can support local needs and development interests. As of 2011, several non-governmental organizations had come to work with the resettlement communities in Penipe and the SPMSPC began meeting with cabildo leaders and community members in the village of Manzano.

**Disasters in Ecuador**

Ecuadorean history is rife with stories of natural disasters in addition to the Tungurahua eruptions of 1886 and 1916-25, Riobamba’s 1797 earthquake, and Ibarra’s 1868 earthquake. Several cities in Tungurahua province were destroyed by massive earthquakes in 1949, and then again in 1987 (Latrubesse 2010). Just as citizens began recovering from devastating landslides that killed more than 50 residents near Quito in 1966 (The New York Times 5-16-1966), a major drought claimed many lives in 1968 (The New York Times 6-2-1968). The research sites for the current study are one village within the immediate risk zone around Mt. Tungurahua and one resettlement village recently established just outside the risk zone (but in the same canton) for people whose villages were destroyed in the 1999 and 2006 eruptions.

Mt. Tungurahua began an eruptive phase in October of 1999, prompting temporary evacuation of approximately 26,000 villagers from the volcano’s southwestern flank. Ashfall, pyroclastic flows, lahars and incandescent material from more severe eruptions in July and August of 2006 affected roughly 650,000 area residents. In Penipe’s northern parroquias higher on the volcano, and in the neighboring cantons of Cotalo and Guano, homes were demolished, crops and productive land destroyed, and animals lost, killed or rendered ill (PAHO 2006). In Penipe canton alone, around 3,000 villagers were
unable or unwilling to return to their communities, with many residing indefinitely in improvised shelters or migrating to urban centers (Whiteford and Tobin 2009; Whiteford et al. 2005).

**1999 Eruptions of Mt. Tungurahua**

Around Penipe canton, people’s experiences and memories of the eruptions vary, but nearly everyone agrees that they never thought Mt. Tungurahua presented any risk prior to 1999. Before it came roaring back to life in October 1999, Mt. Tungurahua was last active from 1916 to 1918, when the volcano generated ashfalls and intense pyroclastic flows and then returned to slumber for nearly 80 years until 1999. Occasionally, someone will recall hearing stories of the 1914-1918 eruptions from their parents or grandparents who remembered massive days of darkness as clouds of ash blackened the sky and tremors shook the earth as pyroclastic flows ran down the mountain.

Although Mt. Tungurahua has been scientifically monitored by the Ecuadorian Geophysics Institute since 1989 (Whiteford and Tobin 2009), no official information on risks posed by the volcano was actively disseminated to the public before the 1999 eruptions. Several volcanic tremors caught the attention of monitoring agencies in 1994, but nothing rose to the level of emergency. But from July to August 1999, Mt. Tungurahua registered roughly twenty earthquakes and generated numerous hybrid eruptions, large ash plumes, and sulfur dioxide gas emissions. Authorities raised a yellow alert on September 15, which indicated that a major eruption was expected within weeks. On October 11, the volcano spewed incandescent material, several more volcanic explosions, and columns of ash and steam that stretched two kilometers high and reached
as seven kilometers from the crater. Two days later, smoke curled from the crater as ash fell heavy on the villages surrounding the volcano. Word quickly spread from village to village that danger was imminent and many began evacuating of their own accord.

Explosions, tremors, gas emissions, and incandescent flows continued and, on October 16 the Geophysics Institute convinced authorities to raise the alert level to orange, indicating an impending major eruption (Global Volcanism Program 2011). With the alert level raised to orange, authorities ordered the mandatory evacuation of the northern rim of the volcano—Baños and the surrounding areas in Tungurahua Province—and Civil Defense forces evacuated an estimated 25,000 residents.

Orders to evacuate the three northernmost parroquias of Canton Penipe—Bilbao, Puela, and El Altar—came on November 17. The process was problematic because there was no clear and effective system in place to communicate emergency warnings to the rural populations around the volcano and the people were unfamiliar with the color-coded alert system. People recall that the Civil Defense and military arrived only once the eruptive process was well underway on the day of the evacuation, when many had already begun to flee the area on local busses that responded to the emergency as ash fell ever more heavily on the region. Once the evacuation orders were given, military personnel took to forcibly extracting those who refused to leave. People recall being terrified and unprepared to leave their homes and crops and animals as they fled in haste, uncertain of where they were going. By the end of the day, a total of 562 households (3,140 individuals) were evacuated from Canton Penipe and many others evacuated on their own, according to the archives of the Ilustre Municipio of Penipe.
Ecuadorian authorities were in many ways unprepared to handle such an emergency and there were no formal shelters in place to house the thousands who were evacuated. Many people say they were shuttled in buses and military vehicles to Penipe Township or the nearby cities of Riobamba in the south or Pelileo in the north, where they had no place to go. In the ensuing milieu, several families were separated for days or weeks as some found refuge in homes with family or friends or, in some cases, in abandoned homes. In the days that followed, radio broadcasts and word-of-mouth reports announced the establishment of makeshift shelters in schools, churches, and convents. Beds, blankets, food, water, and first aid supplies were scarce at first, but donations quickly accumulated. People were unable to return to their land and homes because ash explosions and low-level eruptive events continued through December, and lahars had destroyed the bridges and roads along the western slopes of the volcano.

In all, roughly 6,500 people were unable or unwilling to return home after the eruptions (Ecuadorian Red Cross 8-4-07). People recall their time spent in the shelters as a period of despair and scarcity, as food and water were scarce and social problems arose due to lack of privacy and dependency on strangers and institutions for basic support. Many recall growing despondent at not being able to tend to their land, animals, and homes. Numerous families spent years alternating between shelters, rentals, and the homes of friends and family, though they began to return daily to their villages after the authorities began permitting access to the high risk zone in January 2000.

Exact figures on the disaster’s impacts are difficult to come by. There were no human casualties, although there were reported upper respiratory illnesses associated with the ashfall (Tobin and Whiteford 2002). According to the municipal government of
Penipe, approximately 18,800 hectares of cultivars and 24,000 hectares of pasture were
destroyed by ash, lava, and pyroclastic flows, for an estimated total value of nearly seven
million dollars. Lost revenues from dairy production were estimated at $2,562 per day,
for a total of nearly one million dollars. Animal losses were substantial and reports cite a
loss of 42,500 cattle, 2,300 pigs, 45,000 guinea pigs, 13,000 rabbits, and 220,000
chickens, for a total estimated value of nearly three million dollars (archives of the Ilustre
Municipio de Penipe 2000). Total damage to infrastructure was estimated at nearly twelve
million dollars, as five bridges, approximately 30 kilometers of primary, secondary, and
tertiary roads, and nearly 15 kilometers of the primary irrigation canal were destroyed
and the potable water systems sustained about $50,000 of damage. The roofs of an
estimated 430 homes were also destroyed entirely or partially by falling incandescent
material or the weight of accumulated ash (archives of the Ilustre Municipio de Penipe
2000).

In the years following the 1999 eruptions and evacuation, the small villages that
dot the western and southwestern flank of the volcano remained virtually abandoned.
Thousands remained in shelters and, though some returned to their lands daily, chronic
ashfall continued to degrade the soil and destroy the limited crop yields, while periodic
lava and pyroclastic flows and lahars created a significant public safety issue in the area.
During this period, the Civil Defense began a process of reform, gradually being
dissolved into a new, non-military institution, the Secretaría de Gestión de Riesgos
(Department of Risk Management), which focused on developing risk prevention
strategies in high risk areas. The Department of Risk Management facilitated the
formation of Comités de Operaciones de Emergencias (Emergency Management
Committees, known simple as “COE”). The COEs brought together village and parroquia leaders, municipal and state officials, first responders, and various federal ministries to come up with emergency management strategies. These strategies focused on improving early detection, improving public alert systems by standardizing alert signals and informing the public, evacuation drills, the construction of small emergency management posts and formal shelters, and coordinating institutional responsibilities for emergency response and relief processes (Gestion de Riesgos 2008; Quinde and Aguilar 2007). With these measures in place and with the relative calm of Mt. Tungurahua in 2005, villagers displaced by the 1999 eruptions began to return to the high risk zone in greater numbers since many had not found new opportunities elsewhere and sought to re-establish their livelihoods on their traditional lands. However, after a relatively calm year in 2005, Mt. Tungurahua roared back to life in 2006.

2006 Eruptions of Mt. Tungurahua

In 2006 Tungurahua began a period of activity far greater than 1999 or any intervening years. The activity began in May with a surge in seismic activity attributed to increased pressure inside the volcano. On July 14 the volcano erupted, generating pyroclastic flows, lava flows, and large volumes of ashfall in the provinces of Tungurahua and Chimborazo. Large explosions rang out from the crater and shook the earth from 6pm and throughout the night. For several days, at least 20 pyroclastic flows descended the gorges along the southwestern flank Mt. Tungurahua, reaching several villages below. Coarse gravel also fell with the ash on many villages below. These events resulted in the destruction of crops and the death of numerous large and small livestock. The Penipe-Baños road was destroyed in four places and several bridges were partially or
totally destroyed. By late July, the eruptive process appeared to subside, but the Geophysical Institute warned that the eruption was over.

An estimated 7000 people were evacuated from the high risk zone around Tungurahua on July 15th (Ecuadorian Red Cross 8-4-07). At this time, there were still an estimated 3000 people living in shelters from the first eruption 1999. However, many families (at least 300) had returned to their homes and farms in the high risk zone since the prior eruption. The evacuations, although in many ways chaotic and frightening for all involved, ran much more smoothly and safely than in 1999 because residents had prior experience, were more prepared, and knew where to go. Importantly, by 2006 there were dedicated shelters in place, although people report that conditions were scarcely better than they had been in prior shelters. However, there were many people who no longer wished to leave their communities and resisted evacuation at first. Many people slept in shelters and returned daily to the hillsides to tend their crops and animals, often leaving their children in the shelters during the day. Wanting to monitor and control access to villages in the high risk zone, ostensibly to prevent theft, malfeasance, and the return of villagers before the eruptions had subsided, the military issued identification cards to heads of households and frequently accompanied locals as they visited their property.

On August 16, 2006, Mt. Tungurahua erupted more fiercely than any eruption in recent memory with heavy ash falls, gas emissions, lahars, lava flows, and pyroclastic activity leading to the evacuation of residents of three surrounding provinces. Pyroclastic flows again ran down the Achupashal, Mandur and La Hacienda gorges. A large pyroclastic flow that came down the Achupashal gorge dammed the Chambo River. Another pyroclastic flow the following day destroyed the village of Juive Grande and
completely ruined a large passage of the Penipe-Baños road. The central government issued a decree renewing the state of emergency in the provinces and districts mentioned above.

It has been estimated that when the August 2006 eruption occurred, as many as 1600 people who initially evacuated had returned to tend to their animals and belongings (Ecuadorian Red Cross 8-4-07). The eruption resulted in the death of six people and more than fifty others were treated for burns sustained from lava flows, incandescent rocks, and vapor (OCHA 8-21-06). By the following day, there were 15,000 people in shelters. The Civil Defense and the various COEs focused on acquiring, transporting and distributing food rations and donations to the disaster victims. Task forces from the Ministry of Defence carried out the rescue and evacuation during the eruption. In addition to carrying out the evacuations and assessing ongoing risks, the Civil Defense coordinated and supported responding agencies, including the Red Cross, Fire Department, Police, and the Army, as well as a sizeable retinue of volunteers. The Civil Defense also handled coordination of the efforts of various government ministries and NGOs in the provision of care and relief to affected populations.

Though many say that these evacuations were hectic and frightening, risk prevention and evacuation procedures put in place after the 1999 eruptions helped prepare institutions and the populace for this event and shelters had been constructed in Penipe and Pelileo in 2004. However, people report that conditions in the shelters were not much better than 1999, as there was again a scarcity of basic supplies. Unlike 1999, authorities allowed daily access to homes and lands in the high risk zone, but required people to evacuate before sundown. At least twelve villages on the western slope of Mt.
Tungurahua were declared destroyed by the Civil Defense (AP-CNN 8-18-06; AP 8-21-06). At least 700 families (3,200 people) were permanently displaced and it is estimated that more than 650,000 people were affected by the disaster (PAHO 8-18-06; Hoy Online 8-27-06).

In the shelters, the situation was more difficult. People received food, water, medicines, and clothing, but these items were often scarce. As time went on, a pervasive sense of indignity sunk in as people once again were without their means of livelihood, their homes, and their privacy. Many were anxious again to return to their lives and provide for themselves and their families. Most were thankful for the aid they received, but many perceived inequities in the ways in which relief was distributed. There were accusations of favoritism and greed, with some claiming that certain individuals were given choice items ahead of others and some contending that aid was distributed to those who did not truly need it. There was tension and several disputes between families. Shelters were crowded and felt even more so when the many children were rowdy and disruptive. People felt that they had no control over their own lives.

**Resettlement**

In the interim period between the eruptions of 1999 and 2006, which was filled with lesser, chronic eruptive activity, several state and non-governmental organizations (NGOs) had been exploring resettlement projects for displaced residents of the high risk zone as part of a dual relief and prevention strategy. Newly elected President Rafael Correa visited Penipe shortly after the eruptions and pledged his administration’s full support of the construction of resettlement communities for those displaced in the disaster, especially for those who had remained in shelters since 1999. An Ecuadorian
NGO, Fundacion Esquel, submitted a resettlement plan to the Civil Defense and the municipal government of Penipe a mere 30 days after the August 16 eruption. By the end of the year, several other organizations would commit to resettlement plans. While there were several resettlement communities built by the state and NGOs for those displaced by the eruptions of Mt. Tungurahua, for the sake of space I focus here on the institutions and the two resettlements in Penipe Canton that serve as research sites for this dissertation.

Beginning in September 2006, just after the eruptions, the Ministry of Housing and Urban Development (MIDUVI), along with the Civil Defense, the Ministry of Economic and Social Inclusion (MIES), and the municipal government of Penipe undertook a study of resettlement needs and feasibility in Canton Penipe. The study consisted of a census of the high risk zone and interviews with people in the shelters to determine who was in need of resettlement and who was eligible, the latter being determined by a lack of viable alternatives to resettlement (i.e., having secured housing elsewhere on their own). The final report was issued in December 2006 and recommended a total of 553 households for relocation.

Officials with the Chimborazo Province offices of MIDUVI say that one alternative to resettlement that was debated in the early stages within MIDUVI was the construction of homes in the villages in the risk zone that would be built of reinforced concrete and resistant to ashfall and airborne pyroclastic material. This alternative was advocated because of a lack of land available for resettlement outside the risk zone and because authorities were concerned that resettlers would be unwilling or unable to forego their lands and agricultural livelihoods in favor of a landless resettlement. These plans
were ultimately discarded for at least two reasons. First, state officials found it difficult to justify significant public investment within the risk zone and the Civil Defense was understandably concerned with risk prevention, which would be problematic with reconstruction in the risk zone. Second, the municipality of Penipe was interested in reviving the urban center of Penipe Township, which had declined in population since the 1990s. The municipality devised a plan to invoke eminent domain and purchase land on the southern edge of Penipe township in order to make way for 285 households, which would more than double the 240 occupied households already in the township and, in the words of one MIDUVI official, “build another Penipe.”

MIDUVI planned to build 185 homes in an urban plan in Penipe Township, but planning and land acquisition lagged well into the spring of 2007, when two non-governmental organizations joined the planning process and committed to build houses in the resettlements. Samaritan’s Purse, a Christian Evangelical disaster relief organization based in North Carolina, sent representatives to distribute aid in Penipe in the early spring of 2007 who were approached by then Mayor Juan Salazar to contribute to the resettlement effort. Samaritan’s Purse President Franklin Graham was quick to sign on and agreed to construct 100 homes alongside the 185 that MIDUVI planned to build in Penipe Township. Housing designs presented in late March called for the construction of a total of 285 homes in an urban plan in Penipe (El Comercio 3-29-07). Homes in Penipe would be constructed by MIDUVI and Samaritan’s Purse as duplexes with three bedrooms in each unit, as well as running water, sewer service, and electricity. The agreement was that the municipal government would provide the land and MIDUVI and Samaritan’s Purse would provide and coordinate planning, material, supervision,
construction, and beneficiary selection. In addition to the homes, they would also construct a small park in the center of the resettlement.

Fundacion Esquel joined the process, but presented their own plans to build a resettlement community on a windy ridge-top eight kilometers south of the resettlement in Penipe, where they would build 45 homes and provide land for each resettler family. Esquel secured the backing of the Provincial Council of Chimborazo and several small NGOs, and they purchased 70 hectares of land from private owners at the intersection of the Chambo and Blanco river valleys. There they began designing a settlement, a community center, health center, school building, park, agricultural plots, and greenhouse projects. Houses in the Esquel resettlement would stand alone as single units and have only two bedrooms, but would also count on running water, sewage, and electricity.

Of the three primary organizations constructing the resettlements, Samaritan’s Purse was the first to break ground in March 2007, while MIDUVI was still in the process of reviewing bids from contractors, and Esquel was in the process of purchasing the land for their resettlement. MIDUVI relied entirely on contract labor, although this did include the hiring of some local labor. Samaritan’s Purse and Esquel, however, made beneficiary labor a central part of their construction and beneficiary selection process. Both organizations explicitly sought to harness the perceived development potential of the beneficiary communities and to work with local units of social organization to construct the resettlements. One key objective was to organize traditional cooperative labor parties (mingas) in order to foster a sense of ownership and commitment among beneficiaries. Each beneficiary household in the Samaritan’s Purse community was required to work each day during the construction process without knowing which house
would be theirs. In addition to the housing construction, Samaritan’s Purse organized beneficiary mingas to build sidewalks, public bathrooms, and a park and playground. In the Esquel resettlement, more than a dozen beneficiary mingas were organized to clear brush and timber, build temporary structures, and dig trenches, while the houses themselves were built by hired contractors. As with Samaritan’s Purse, Esquel beneficiaries were also organized into mingas to build the central park of the new resettlement.

On February 8, 2008, nearly nine years after the first devastating eruptions of Mt. Tungurahua, MIDUVI granted 185 homes to beneficiaries in Penipe in a ceremony presided over by President Rafael Correa. Two months later, construction on the nearby Fundacion Esquel resettlement was completed and representatives from Esquel and the Provincial Council of Chimborazo granted 45 homes and one hectare of land to each beneficiary household. Prior to the opening ceremony, beneficiaries had met to elect a village council (Directiva) to administer the affairs of the community. In their first official capacity, they named the new hilltop resettlement “La Victoria de Pusuca” (hereafter Pusuca) in the first formal act of the community on April 27, 2008 (El Comercio 4-27-08). Several months later, on August 9, Samaritan’s Purse granted the first 56 of 100 homes to beneficiaries (El Comercio 8-11-08) and the remaining 44 were granted in November of 2008.

The houses in the Penipe resettlement were nearly identical. Samaritan’s Purse and MIDUVI homes shared the same floor plan, but they were distinguished by three features. The most obvious is that, while MIDUVI homes were all painted an identical shade of yellow, Samaritan’s Purse homes were painted green, blue, rose, or orange.
Samaritan’s Purse homes also had main entrance doors flush with the outer walls of the homes, while the doors to MIDUVI homes were slightly recessed. Lastly, houses built by the two institutions were distinguished by the plaques posted next to the doors of each home, which bore the household address and the name of the donor institutions. It is also worth noting that, while the homes in the resettlement more or less resemble one another, they do not resemble any of the previously existing homes in Penipe Township. The brightly colored, one-story concrete duplexes with fiberglass roofs in the resettlement stand in stark contrast to the wood, stone, and plaster one and two-story single-unit homes with concrete or tile roofs in Penipe Township. In nearby Pusuca, all homes were painted either green or blue and were constructed of material similar to the homes in Penipe, though with a slightly different floor plan and with only two bedrooms.

Together, the 185 homes built by MIDUVI and the 100 built by Samaritan’s Purse form one resettlement community at the southern edge of Penipe Township, while Pusuca stands apart several kilometers up the hill to the northeast, though still a part of the same central parroquia/parish. Resettlers in Pusuca primarily come from Parroquia Puela, though there is one household from Parroquia Bilbao and another from Parroquia El Altar. Among those from Parroquia Puela, more than half are from the village Pungal de Puela, five households are from Manzano, and another four are from other villages in Puela. The resettlement community in Penipe, however, is much more heterogeneous, with resettlers from all the villages from the three parroquias in the high risk zone of Chimborazo Province—Bilbao, Puela, and El Altar—and several households displaced from Tungurahua Province (see table 2).
Table 2. Households in Each Resettlement by Village of Origin

<table>
<thead>
<tr>
<th>Village (Parroquia)</th>
<th>MIDUVI</th>
<th>Samaritan's Purse</th>
<th>Esquel - Pusuca</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilbao (Bilbao)</td>
<td>10</td>
<td>33</td>
<td>1</td>
</tr>
<tr>
<td>Yuibug (Bilbao)</td>
<td>17</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Capil (El Altar)</td>
<td>10</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Ganzhi (El Altar)</td>
<td>6</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Palictahua (El Altar)</td>
<td>31</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Anaba (Puela)</td>
<td>11</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>Choglontuz (Puela)</td>
<td>3</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>El Tingo (Puela)</td>
<td>2</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Manzano (Puela)</td>
<td>16</td>
<td>17</td>
<td>7</td>
</tr>
<tr>
<td>Puela (Puela)</td>
<td>8</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Pungal de Puela (Puela)</td>
<td>56</td>
<td>18</td>
<td>25</td>
</tr>
<tr>
<td>Penipe Township (Penipe)</td>
<td>12</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

The Penipe resettlement is laid out on an urban plan, with paved roads and each house separated by a small yard. Although the resettlement was outfitted with modern plumbing, water, and sewage, the main potable water network in Penipe was unable to service the resettlement and for more almost two years, potable water service was sporadic, at best, until the main system was repaired and ultimately replaced in 2011. In Pusuca, potable water and sewage were also installed using beneficiary mingas, although potable water service was sporadic as well until additional tanks were added to the system in late 2010. Both Pusuca and the Penipe resettlements have communal infrastructure in addition to the homes. In Penipe, Samaritan’s Purse designed and constructed a roughly 6000m² park using beneficiary labor. The park includes two volleyball courts, a children’s playground, public restrooms, open space for vendors, and is enclosed by concrete bleacher-like seating for recreation and public assemblies. Pusuca likewise has community facilities. All of the houses were constructed on a square plan that left approximately 6000m² of open space in the center of the plan. Here, residents and volunteers from several Ecuadorian charities built fences, benches, and small
playground equipment from eucalyptus cleared for construction. Also, in addition to the park, Esquel constructed three community buildings – a community meeting center, a school and computer facility, and a health center. Therefore, in Pusuca there are designated buildings to meet and organize community functions, whereas no such enclosed structure exists in the Penipe resettlement.

Why I Chose Pusuca and Manzano as Study Sites

As mentioned at the beginning of this chapter, I lived in Penipe for ten months while conducting fieldwork in the disaster-affected communities and disaster-induced resettlements throughout Penipe canton as a graduate research assistant in 2009. When I arrived in Penipe in February 2009, people had been occupying their new homes in the Penipe and Pusuca resettlements for nearly a year. Mt. Tungurahua was calm for most of the year, occasionally registering small volcanic explosions that could be heard and felt as far away as Penipe, but there was no significant ashfall and no lahars or pyroclastic flows. Some households had begun new lives in the resettlements, moving into their new homes and some even created small stores and food stands. However, as mentioned above, there were no productive resources (land or animals) in Penipe, and in Pusuca—where resettlers were granted small plots of land—production was starting out slowly since they lacked irrigation, and most of them had only just begun to clear brush and trees from their newly granted land. This lack of productive resources, combined with the relative calm of the volcano, led many resettlers to return to their lands in the high risk zone and tend to crops and animals there, as they had done for generations. As a result, the resettlement communities were like ghost towns during the day.
During this initial field experience, I observed a great deal of tension between countervailing forces, many of which appeared to be bound up in minga organization. In Pusuca, they would organize mingas every weekend, mostly to develop catchment systems to channel rainwater to their lands, in lieu of having a larger irrigation canal, which they spoke of working towards. The Esquel Foundation had the community establish a governing council, or Directiva, and insisted that they ratify mandatory “General Assembly” meetings to be held each month and mandatory mingas to be held each week. Resettlers there learned that demonstrating “community organization” was one critical way to attract development resources from the state and non-governmental organizations. They often spoke of proving themselves to organizations by organizing mingas.

In Manzano, Cabildo leaders had been organizing mingas for similar purposes. People were now able to return to their lands and village and parish leaders were seeking to foster a revival of their displaced communities. Mingas were organized weekly to repair community buildings and roads and the leadership spoke constantly of attracting outside investment by demonstrating their capacity to organize. While in Pusuca, leadership would often complain that people were absent from mingas because they were off tending to their lands in the high risk zone, in Manzano they complained that their numbers were dwindling due to people spending too much time in the resettlements or in Riobamba.

In 2009, I noted the countervailing tensions between development, minga organization, and political power in the resettlements and the original villages in the high risk zone. Resettlement and changing household economic strategies, such as seeking
wage employment in urban centers outside Penipe, were dividing peoples’ time and energy and undermining their ability to organize mingas. Mingas were also being organized to help facilitate economic recovery in both communities by not only building infrastructure that would support local production, but also by organizing in ways that would invite outside development funding that would help further recovery and productive capacities. But there were also decidedly political elements in minga organization. The political power of village and parish leaders in the high risk zone was diminished in the resettlements. It seemed like a fair amount of the community and economic revival efforts directed by these leaders in the high risk zone was also an attempt to maintain or reestablish diminished power. In the resettlements, resources were not necessarily channeled through the traditional leaders, as they were in their original villages. The revival of these communities would restore control of the flows of outside resources to the old leadership. In Pusuca, it seemed that mingas were part of strategies to establish power as well. Participation and non-participation helped to distinguish between “deserving” and “non-deserving” beneficiaries and politicized the distribution of resources in the community. Moreover, those who might fail to participate one or more times could find themselves marginalized in the ostensibly democratic decision-making processes.

It was with these thoughts in mind that I returned to Penipe in 2011 to examine what I had earlier perceived as the multiple political economic tensions bound up in mingas and reciprocal exchanges in the resettlements. I chose to focus on the two communities of Manzano and Pusuca because they appeared to present distinct cases but still reasonably close together. Most of the residents of Manzano had been resettled into
the Samaritan’s Purse and government homes in Penipe, where there were no productive resources or employment opportunities. While three households in Pusuca had come from Manzano, most came from neighboring villages in Puela Parish, and they now had land on which to produce. Moreover, the institutions that created and administered these communities were very different, which might have important implications for community organization, reciprocal exchange, and political power. Based on my observations in 2009, I returned in 2011 to conduct research guided by the research questions outlined in chapter 1.

**Resettler Livelihoods**

I first arrived in Canton Penipe to conduct fieldwork in February 2009 as part of a National Science Foundation supported study of social networks and disaster recovery in which I served as a fieldworker. It was just eleven months after the resettlements were inaugurated and what struck me the most was that both resettlement communities were virtual ghost towns in the daytime, and many homes appeared unoccupied. I soon learned that this was largely due to the fact that there were simply no productive resources in the resettlements, which meant that people had to travel elsewhere to make a living. The Penipe resettlement did not include any land for agricultural production, which was the primary economic strategy of the resettlers. Moreover, because Penipe Township is considered an “urban” parroquia, a municipal ordinance prohibits the keeping of livestock or minor species within the township. In contrast, resettlers in the separate Pusuca resettlement were granted one hectare each for agricultural production and were free to keep animals in several commonly-held locations as well. However, the lands granted were forested and highly uneven, so the process of colonization took some time
and a great deal of labor. Subsequently, although resettlers in Pusuca technically had
access to productive resources in the resettlement, because the land was not in a
productive state they, like resettlers in Penipe, had to look elsewhere to produce or earn
their livelihoods, which no doubt contributed to further delays in their pioneer
colonization.

Lacking productive resources in the resettlements, resettlers primarily engaged in
one or more of three economic strategies. The first and least common strategy was the
establishment of small, informal businesses in the resettlements. Most cases of this
strategy were very part time, as some individuals set up roadside grills on the weekend to
sell food (usually fried potatoes, grilled chicken, or pork fritada). But there were two
households in each community that converted one room of their homes into convenience
stores that sold basic household items, snack foods, beer, and cigarettes. One household
in Penipe set up a pizzeria in 2009 that grew into a significant and popular business by
2011. Another household in Penipe set up a pool hall and bar in 2009, but it was shut
down by local authorities by the end of the year due to a prevalence of underage drinking
and violence associated with the establishment.

The second strategy was to seek out wage employment, which frequently entailed
seasonal or semi-permanent migration. Employment opportunities in Penipe were very
scarce, but a few individuals found employment in municipal offices, one of the few
private enterprises in Penipe Township, or as day laborers for one of the wealthier
households in the town. It was, however, more common to migrate in search of
employment, which was a strategy that carried over from the evacuation and
displacement period from 1999 to 2008, but also part of a broader Ecuadorian trend of
rural-to-urban labor migration that began in the 1990s. A majority of households in both communities had one or more members who either commuted daily to work in one of the nearby cities of Riobamba or Ambato, or else migrated seasonally or semi-permanently further to Quito, the coastal cities of Guayaquil or Esmeraldas, or into the small cities in the Amazon for employment.

It is the third strategy—resettlers returning to their lands in the high risk zone to plant crops and raise animals—that requires an extended discussion to highlight several key issues in the resettlements. This strategy was employed by nearly every resettler household during my fieldwork in 2009 and 2011 and had important implications for the development of both resettlements. Although volcanic ash had resulted in severe soil degradation, desiccation of fruit trees, and the contamination of animal pasture, resettlers retained ownership of their land, homes, and animals that survived the eruptions and remained their most viable productive resources. As always, busses ran hourly from Penipe to the parroquias in the high risk zone in the north, so resettlers could commute there daily. One exception was the northernmost parroquia of Bilbao, which remained inaccessible until 2011 because the road and several bridges had been destroyed by lava and pyroclastic flows in 2006 and had yet to be prepared. As a result, resettlers from Bilbao would take the bus as far as Puela and walk another three hours to their lands in Bilbao. This strategy, more than the others, helps to explain why the resettlement communities were largely abandoned during the day, but absence from the resettlements also frequently extended for days, part of a somewhat complex phenomenon that soon became a source of tension in the resettlements.
Some residents began returning to plant in the northern parroquias in late 2007, but there were only a few pioneers at first, as planting remained a precarious endeavor due to the persistence of ashfall throughout 2007 and 2008. By 2009, however, volcanic activity was on the decline and there was a renewed movement to return to the abandoned northern parroquias. Largely as a result of economic insecurity and a lack of alternatives in the resettlements, people began returning to plant in Bilbao, Puela, and El Altar. Other factors influenced this trend as well, including several initiatives by village and parroquia leaders, especially in Puela. For the first time since the 1999 eruptions, many villages in the high risk zone in northern Chimborazo Province and southern Tungurahua Province celebrated their saints’ day festivals after planting in September and October. In Puela, local leaders advertised the local Fiesta de San Miguel as *El Retorno a Puela* (“The Return to Puela”) and invested significantly in glossy posters that were spread throughout the region, urging Pueleños not only to return for the fiestas, but to return for their livelihoods and their *patrimonio* (heritage). It was not only a call to come back to the fiestas, but a call to return to their homes and rebuild their communities.

In the months before the 2009 fiestas, village and parroquia leaders had begun organizing mingas in Puela to repair buildings and infrastructure. The village of Manzano rebuilt the roof and outer wall of their community center and the rural medical clinic in May and June 2009. In July, authorities from Parroquia Puela organized mingas for residents of every village in the parroquia. The first was to remove cobblestones from roughly 1/3 kilometer stretch of the main Puela road to make way for paving. The second was to rebuild the Puela Elementary School. Another minga worked to repair the roofs of the Puela Catholic Church and yet another to repair the roof of the school. At the time, it
was unclear where the funding would come for paving the road or reopening the school, as the state had already expressed an unwillingness to invest in the high risk zone, and all of the students from the Puela Elementary School had been relocated to schools in Penipe Township, near the resettlement, where construction was beginning on a new school. Nonetheless, leaders throughout Parroquia Puela made numerous impassioned pleas to the people of the area to return and took many steps to organize the villages to begin rebuilding the area. Village commoners, for their part, seemed inspired by the rhetoric and the possibility to return to their homelands and perhaps regain what they had lost. The dozen or so mingas organized in Puela in mid-to-late-2009 were some of the largest witnessed in the area before or since.

The increasing return of displaced agriculturalists to the northern parroquias in 2009 soon began to have important consequences in the resettlements. All three resettlement agencies—MIDUVI, Samaritan’s Purse, and Esquel—had some basic requirements of their beneficiaries. One was that they could not rent or sell their homes for 25 years and the other was that they had to demonstrate residence by regularly occupying their homes in order to retain possession of them. It is not clear how explicit or well-understood the residency requirements were made to beneficiaries, nor is it clear that resettlers could have foreseen the potential complications and consequences when MIDUVI was still in the process of drafting their regulatory process in 2009. However, it is clear that many households had difficulty satisfying their residency requirements beginning in 2009. The problem was that it was often not feasible or reasonable to return to the resettlements because of the burden of the commute (especially for those from Bilbao, who had to walk a good distance each way) and also for the increasing prevalence
of theft in the communities in the high risk zone. Theft of animals, farm tools, and household items became a significant problem in 2009, as thieves began to prey on homes and communities they knew to be vacant in the evenings. And the thefts were often significant – thieves were known to make off with several animals at a time, hauling pigs and chickens to market in small trucks. Because primary production in the risk zone – however precarious – remained the most common and reliable economic strategy, the fear of theft became endemic among resettlers, as they felt vulnerable to losing all they had once (or more) again.

While regulatory procedures for residency were not explicit for the three resettlement agencies from 2009-2011, certain de facto processes with each are worth noting. Samaritan’s Purse granted deeds to beneficiaries shortly after they granted the homes, while MIDUVI retained the deeds to all homes in the resettlement. Esquel initiated a post-hoc process of land surveying in late 2009 and began granting deeds in mid-2010 to select beneficiaries who had regularly met their contractual obligations to the community—regular residence, mandatory attendance and monthly General Assembly meetings and weekly mingas, and payment of monthly dues (more on dues below). However, in an interview with the Esquel Community Coordinator for Pusuca, Martha Santiago, she explained that all beneficiaries did in fact have legal ownership of their homes and property. Esquel had merely presented the documents to those beneficiaries in good standing, while telling others that they would receive deeds after prolonged trial period, but Martha said that any beneficiary could easily go to the Civil Registry office and obtain their own copy of the deed. But beneficiaries who had not been
in compliance were intentionally misinformed of their legal possession of deeds as a means to coerce them into compliance.

Esquel representatives regularly visited Pusuca and attended almost all village meetings and mingas. With the exception of two ceremonial visits in 2009, where they brought former church volunteers from the United States who had worked on the construction of the resettlement, Samaritan’s Purse was no longer involved in the resettlement community and did not engage in any regulation of residency in the resettlement. MIDUVI, however, began conducting random visits to resettlement homes in the spring and summer of 2009 to confirm that homes were occupied. Several meetings of MIDUVI beneficiaries were called throughout 2009 and 2010 to inform them that they would be evicted if they did not occupy their homes. While some beneficiaries verbally protested these threats at the meetings, explaining the difficulty of living with no economic means in the resettlements, MIDUVI representatives responded by likening some beneficiary behaviors to defrauding the state. When I returned in 2011, MIDUVI representatives continued their random visits and threats of eviction. In a public meeting of all beneficiaries on September 2, MIDUVI representatives announced that residents had 90 days to establish residency and become eligible for deeds to their homes but, failing this, they would be evicted. On December 1, MIDUVI representatives again visited the resettlement and posted eviction notices on more than a dozen homes, informing them that they had 15 days to establish residency or face eviction.

**Governance and Projects**

In order to place much of this study in context, it is necessary to describe some of the features of governance, mingas, and development in the two study sites and how this
relates to external institutions and the flow of resources from outside the villages. The governing bodies and institutions in each site are both similar and distinct in several key regards and they are tied in different ways to different state and non-governmental organizations. They also organize their communities in ways both similar and distinct.

_Governance, Mingas, and Development in Manzano_

The people of Manzano are subject to the authority of several institutions and, for the purposes of description, it is useful to distinguish between the institutions operating in the resettlements (where most of them live at least part time) and those operating in Manzano itself. The primary political institution in Manzano is the cabildo, the village council that was established when Manzano formally incorporated as a _comuna_ (village) in 1973. The cabildo consists of a president, vice president, secretary, treasurer, and a trustee (_sindico_). There are three other committees as well: potable water, irrigation, _caja comunitaria_ (cooperative savings and loan), and _seguro campesino_ (peasant healthcare cooperative). There is also the _Junta Parroquial de Puela_, a parish-wide governing council, which not only administers projects and affairs for all villages in the parroquia, but is also significantly involved in the internal affairs of each, especially Manzano. Finally, the Municipal Government (the mayor and county council or _Consejo Cantonal_), are also involved in budgetary issues in Manzano and villages throughout Canton Penipe.

The other institutions largely function through the Cabildo in Manzano. Cabildo officers are elected every year, but as of 2011, the same two individuals had been serving as president and vice president had been serving for twelve years (since the 1999 eruptions) without change. The other positions also went largely unchanged during this time period, with most of these changes being due to the same individuals alternating
different posts (e.g., treasurer, trustee). The functions of a cabildo were captured by a survey of 131 villages in Chimborazo by Cadena and Mayorga (1988), who identified their primary functions as organizing mingas and village assemblies, searching for external institutional support and funding, and implementing community projects. Mingas evolved as key factors in governance and development in the post-disaster and resettlement contexts in Canton Penipe, but this was also part of a larger trend in participatory governance in Chimborazo Province and throughout Ecuador that began in the late 1980s (Cameron 2010; Colloredo-Mansfield and Phillips 2010).

Figure 2. Scenes from Manzano. Top left, a 2009 minga to repair the Casa Comunal; Top right, a meeting of the Cabildo in front of the Casa Comunal; Bottom right, team of Manzano laborers working on a Puela Irrigation minga; Bottom left, two Manzano women take a break from an irrigation minga and rest in the shadow of Mt. Tungurahua.
The way that mingas factored into politics and development is relatively straightforward. The state—and particularly Chimborazo Province—has been expanding decentralized budget and governance strategies for two or three decades (cf. de Mattos 1989), and participatory strategies have increased with the rise of the populist socialist President Rafael Correa and the charismatic indigenous leader, Mariano Curicama, who served as prefect of the newly-created Provincial Council of Chimborazo from 2009 through 2012 (Cameron 2010). These strategies follow a participatory strategy (mostly public review) for the expansion of public works (potable water, irrigation, and roads) to reach rural regions throughout the country (Cameron 2010). However, in spite of dedicating a portion of state oil revenues to rural development since the 1970s (Colloredo-Mansfield and Phillips 2010), the state has been unable to keep pace with its infrastructure development goals with its limited budget alone. As a result, the Provincial Council of Chimborazo commits part of its annual participatory development funds to purchase raw materials and fund limited professional oversight for infrastructure development projects in which there is a contractual commitment from village beneficiaries that they will perform the project labor by organizing mingas. Non-government organizations (NGOs) look to mingas in much the same ways as the state. NGOs have played a large role in facilitating the participatory projects of the state and in directly funding community-based micro-projects and they tend to and prefer to work primarily with large indigenous populations and villages that demonstrate high degrees of community organization (Cameron 2010; Bretón and Garcia 2003; Bretón 1997).

According to local officials in Penipe, cabildo leaders in Manzano learned that demonstrating community organization can attract outside resources when they observed
the success of a nearby village in Parroquia El Altar, who had attracted the attention of the state and non-governmental organizations by organizing village-wide mingas after the 2006 eruptions. As mentioned above, the Manzano Cabildo began organizing village-wide mingas in 2009. The first several mingas were organized to repair the community center, the village healthcare facility, the village potable water system, and a small ball court in the village center. Around this time, several non-governmental organizations came to Manzano to fund several pilot micro-projects aimed at economic recovery in the area. By late 2010, Manzano secured state funding to repair and expand their potable water system, largely as a result of their demonstrated capacity to organize mingas. In 2011, representatives from several government ministries, indigenous and peasant organizations, and non-governmental organizations began meeting with the people of Manzano to plan small development projects and made it explicit that they chose Manzano over other communities in the region because they were known to be organized. Early in 2011, the Junta Parroquial began organizing parroquia-wide mingas to repair the irrigation canal that spanned the entire parroquia. Manzano stood out as the most organized of the villages in the parroquia, as they frequently outnumbered minga workers from the other villages. As a result, when minga labor was concentrated on the eastern stretch of the canal for months, benefitting other less-organized villages, but never reaching Manzano, cabildo leaders in Manzano withdrew the participation of their village as a tactic to lobby the irrigation committee to move work to the western stretch of the canal, which would benefit Manzano.

The *sustained* recruitment of participants for the production of common resources, as witnessed in Manzano, is the primary source of cabildo power. Cabildo
leaders continue to organize mingas for projects including irrigation, potable water, and village road maintenance. The minga has become a powerful symbol of community solidarity and an important tool in the competition for scarce development resources. Manzano uses mingas to attract outside aid and projects by proving that they are organized and therefore deserving of aid and project investment, often competing with other communities by claiming that they are more organized and therefore more deserving than others.

_Governance, Mingas, and Development in the Penipe Resettlements_

The resettlement communities in Penipe and Pusuca established village councils similar to cabildos shortly after the resettlements were built. Known as _directivas_, these organizations also organized mingas and sought to attract support from outside organizations. However, these organizations and the mingas they facilitate worked somewhat differently than the cabildos. In the Penipe resettlement, where most of the Manzano community was relocated along with resettlers from many surrounding villages, the two different resettlement agencies—Samaritan’s Purse and MIDUVI—helped to establish two different directivas. There was a Samaritan’s Purse beneficiary directiva and a MIDUVI beneficiary directiva. In Pusuca, the Esquel Foundation also helped establish a directiva, but there are important differences between the directivas in Penipe and Pusuca that by comparison with each other and Manzano, serve to illustrate further how political power is produced and maintained through mingas.

Neither of the directivas in the Penipe resettlements held regular meetings and neither of them successfully organized mingas in the resettlement between its founding in 2008 and the time of the present study in 2011. As mentioned above, Samaritan’s Purse
had organized mandatory beneficiary mingas to construct homes in the resettlement, but mingas did not continue after construction was complete. The mingas organized by Samaritan’s Purse were unusual (though not unprecedented) in that they organized people from multiple villages, largely circumventing the traditional cabildos. One potential explanation for the absence of mingas in the resettlements lies in the fact that initial beneficiary mingas were based on institutional recruitment for personal benefit not collective action for community benefit. Local leaders point to an important precedent of this type of organizing and its effects. The Peace Corps carried out potable water and irrigation projects in Penipe from the mid-1960s through the 1980s, recruiting participants by providing them with food rations of canned meat, powdered milk, and grains. Cabildo members and minga leaders from this era say that these projects destroyed the culture of mingas, as they could no longer recruit participants without promising personal compensation. Cabildo leaders were not able to negotiate for their communities’ needs with outside institutions based on their ability to organize the community for project-related goals, nor could they mobilize their communities based on their unique abilities to secure resources from outside institutions. Likewise, the directivas in the Penipe resettlements were unable to mobilize their community or make demands of outside organizations. In 2011, the Samaritan’s Purse directiva attempted to organize a minga to improve the deteriorating park in the center of the resettlement community, but soon abandoned the project, as they lamented that people would not participate unless they provided them with incentives. They also worried that they would not be able to demand resources from the municipal government, the state, or NGOs if they could not organize the community.
The MIDUVI beneficiary directiva was never known to attempt to organize mingas. Their primary activity was to organize ad hoc beneficiary meetings with MIDUVI representatives. These began in 2008 when the resettlement was first opened and MIDUVI officials presented the homes in a ceremony co-organized with the directiva and other local authorities. By early 2009, MIDUVI representatives visited the resettlement on several occasions to explain evolving beneficiary policy issues and the enforcement of residency requirements. Although the representatives took questions, these were primarily one-way discussions, with MIDUVI personnel informing beneficiaries of policy and enforcement issues. Directiva members served to call
meetings to order, take attendance, and introduce the MIDUVI representatives. On the few occasions that MIDUVI representatives did not attend these meetings, directiva personnel merely read statements from MIDUVI to beneficiaries and attempted to clarify or interpret those statements for beneficiaries with questions. It is also important to note that all of these meetings took place on the street, as the Penipe resettlement did not include any public meeting facilities.

One particular instance serves to illustrate the effective absence of local political power in the MIDUVI resettlement. After MIDUVI representatives issued 15-day eviction warnings to several households in December 1, 2011 (described above), directiva leaders called an emergency meeting of all beneficiaries in order to organize a response. Nearly 100 beneficiaries—considerably less than the total of 185 beneficiary households—huddled under the awning of the pizzeria in the resettlement to escape the pouring rain as the directiva president and vice president read the eviction letter to the group. The leaders then voiced their indignation at the fact that MIDUVI was preying on the most vulnerable who were off tending to their crops and animals while MIDUVI representatives conducted their random visits. They exhorted the crowd to share their indignation and stand up for their neighbors. They said they would all be vulnerable if they allowed this to go on and called for a meeting the following week where they would “rise up” and confront MIDUVI and demand that they cease eviction proceedings and random visits and instead schedule formal meetings when they wanted to address the community. Somewhat surprisingly, even fewer beneficiaries turned out for this meeting the following week and it contained none of the resistance portended in the previous meeting at the pizzeria. Instead, as with prior MIDUVI meetings, a state representative
stood up and addressed the group, telling them that there was no way around the residency requirements and that failure to comply would result in eviction. Directiva leaders repeated the remarks of the state representative and thanked him for “clarification” before he took some questions and then left.

_Governance, Mingas, and Development in the Pusuca Resettlement_

The Esquel Foundation not only provided resettlers in Pusuca with one hectare of land per household, they also created a new village council, or directiva, whose officers are elected every two years. The directiva organizes weekly mingas for irrigation and potable water, which unlike housing construction, are collective benefits, not personal ones. Failure to participate is sanctioned by levying $10-$20 fines on households and, in the case of the irrigation canal being constructed, those who fail to participate or pay the fines are told they will be excluded from the project. The directiva is similar to cabildos in structure and mandate, but a representative from Esquel, Martha, serves as an advisor to the main directiva and the other committees. She attends all meetings and mingas and guides leaders through the decision-making process. Unlike her predecessor, who became entangled in the politics of the village and was subsequently removed, Martha helps to manage the tension between the egalitarian community goals and the unequal power relations that come to bear in the village. The first directiva president was a woman, Mariana, who was ousted after her first year by powerful, wealthy landowners from her own village. The most powerful, Manuel, succeeded her as president for two years. He and his allies successfully excluded Mariana and others from development projects in the community—most notably several large greenhouses that produced tomatoes for market—while offering privileged access to close allies. Since Martha’s arrival from
Esquel, the village has elected a new directiva and now Manuel and other powerful landowners spend less effort on the communal projects and pass most of their time on their sizeable plots of land in the high risk zone and away from Pusuca.

In 2011, Leadership positions in the new directiva and the several village committees (irrigation, potable water, credit union) were held by many people who were formerly both economically and politically marginal. Women and individuals from land-poor households were more represented on the Pusuca directiva and committees than in those same organizations in villages elsewhere in Penipe Canton. The president, Angel Turushina, was a young man who came from a relatively poor family who lived on a hacienda on the outskirts of Puela Parish. His influence and ultimate election was perhaps aided by the many kin he had in the resettlement, but he was generally perceived as an intelligent and just leader whose youth and new ideas were an ideal break from the entrenched political power of wealthy landlords that dominated politics before the resettlement and in its first years. Unlike the cabildos in Parroquia Puela, where women only occasionally had leadership roles, women were well represented on the Directiva and other committees in the village and played active roles in decision-making. Moreover, many of the women who increasingly assumed leadership roles were from economically marginal households. Judith was the secretary of the Irrigation Committee and often demonstrated more leadership and exerted more power than its president, yet Judith and her father, uncles, brothers, and cousins were among the poorest in Puela Parish, with very little land or livestock, and for generations a reliable pool of cheap peon labor for their better-off neighbors. In 2011, it was often Judith that dictated work responsibilities on mingas, keeping track of rayas (minga attendance credits), and calling
out people she perceived as shirking their responsibilities. She was also one of the most vocal contributors to all village meetings.

Despite strong leadership by presidents or some committee heads, the process of decision-making in Pusuca was generally democratic, with little power truly vested in the elected leadership. This was partially because all decisions were voted on and partially because, ever since Pusuca’s founding in 2008, the meetings were monitored, guided, and arbitrated by an ever-present Esquel representative. Directiva meetings began at 7pm on the first Saturday of every month and often ran as late as midnight, as each item on the meeting’s typically modest agenda is met with lively debate. Unlike Manzano, where debate and gossip focused on the comparative legitimacy and eligibility of different villages around them, debate and gossip in Pusuca focused almost exclusively on the comparative legitimacy and eligibility of the different resettlers within the community.

Agenda items often involved reporting on irrigation canal progress, potable water, minga schedules and opportunities for atrasados, status updates on basic services in the village, and often invitations to participate in micro-development projects, such as agricultural extension training and farm-to-table programs. However, each agenda item, no matter how big or small, was met with contentious debate over who is deserving or non-deserving of project inclusion, who is atrasado (behind) or al dia (current) with dues and responsibilities, and how people should be sanctioned. When these items almost inevitably reached their boiling points or when village leaders brokered arguably pyrrhic compromises, as when they once voted to evict a man from the village for missing too many mingas because they doubted the veracity of a doctor’s note, the Esquel
representative eventually stepped in and brokered a peace that was always accepted, if not always welcomed.

Figure 4. Scenes from Pusuca. Top left, the Pusuca resettlement; Top right, a monthly General Assembly meeting; Bottom right, a 2009 minga to build a water catchment system; Bottom left, digging trenches for a 2011 irrigation minga.

The Pusuca Directiva organized two types of mingas—community mingas and irrigation mingas—on a weekly basis and attendance by one member of each household was mandatory. Both types of mingas might worked on the irrigation canal, but the operative differences were how work was conducted, how rayas (attendance points) were awarded, and the cost of multas (fines). Since the founding of the Pusuca resettlement in 2008, the Esquel Foundation had made attendance in weekly mingas and monthly General Assembly meetings a condition of project inclusion. The elected Pusuca
Directiva ratified and enforced this, with the support of the community, soon after the first officers were elected in 2008.

An irrigation minga involved work on the irrigation canal that was being constructed with funds from the World Bank and the Provincial Council of Chimborazo in coordination with the Esquel Foundation. The canal stretched approximately twelve kilometers from the highlands of La Candelaria Province in the southeast of Penipe Canton to Pusuca, nearer the center of the canton. Work involved the digging of long trenches for submerged tubes to channel the water to Pusuca lands, as well as hauling tubes, stone, sand, and cement to the many job sites along the canal, where teams of paid workers labored under the supervision of engineers from the World Bank and the Provincial Council. Labor on irrigation mingas was based on a system of *tareas* (tasks) assigned equally to each household. The first tarea I participated in was for each household to haul 50 shovelfuls of stone in nylon grain sacks filled with 5-10 shovelfuls at a time from a roadside deposit to a worksite that could be anywhere from 100 meters to almost a kilometer away. Another tarea the following week was to dig a trench ten meters in length, one meter deep, and a half meter wide. All of these tareas were performed at an altitude of 3000 meters, where most people got winded quickly. Tareas were uniformly assigned to every household, regardless of age, gender, or physical ability and rayas were not awarded until the tarea was complete. Elderly workers and several women would have to return to work several days in order to complete their task, while many of the more able-bodied men were able to finish in one day. On one occasion, I observed a small-framed woman who was in poor health take more than three hours to carry her 50 shovelfuls of stone a distance of 100 meters in sacks of only three shovelfuls at a time.
There was no prohibition against having multiple laborers on a tarea and there were several instances where a household brought more than one laborer or multiple households collaborated on each other’s tarea. This system had been suggested in early 2011 by several men in the village who were concerned that households did not contribute equally to communal work and wanted a way to standardize labor requirements to eliminate what they saw as a form of free-riding. The tarea system was ratified by the community, though many found it a burden. The multa for non-participation was $20, though rayas could be made up, but only through irrigation minga tareas, not community mingas. As a result, several elderly resettlers female-headed households would send peons to work irrigation mingas, as the peons only cost about $10 per day. Finally, the sanction for failing to complete and pay all rayas and multas would be elimination from the irrigation system, though this was still highly contested at the end of my fieldwork.

Community mingas in Pusuca had no tareas and multas were only $10. A community minga might work within the village, repairing community structures and the central park, clearing roads and paths, or on the irrigation canal, the latter being more common in late 2011. Instead of a tarea, work was for a designated period of time, usually from 8am to 4pm and no one kept track of anyone’s labor output. In these mingas, as with community mingas in Manzano, there was a more gendered division of labor. Women and men usually worked in separate groups. In one minga, where we were transporting sacks of stone and sand from the roadside down a steep cliff to a worksite below, seven women lowered stone sacks on a rope from the roadside above, where five men would receive the lightly-loaded sacks and trek them further through the hills to the
jobsite. At other times, men would carry multiple heavy PVC tubes over a kilometer distance or more in the hills, while project engineers or Esquel representative Martha shuttled women with their tubes in pickup trucks.

Both the Pusuca Directiva and Esquel focused on community organization to attract funding and project support from outside donors. Community mingas formed a key part in the irrigation canal project funded by the World Bank and the Provincial Council of Chimborazo. Esquel played a central role in attracting outside agencies to the community and they successfully brought in funding from dozens of NGOs to support micro projects in Pusuca, ranging from park construction, to greenhouses, to potable water, to computer facilities.
CHAPTER FOUR: METHODOLOGY

I lived in Penipe for ten months in 2009 while conducting fieldwork in the disaster-affected communities and disaster-induced resettlements throughout Canton Penipe as a graduate research assistant for a National Science Foundation-funded study of personal networks and disaster recovery from February-December 2009 (see chapter 1). It was during this initial fieldwork experience that I observed many of the practices of interest in this study—mingas, reciprocity, village council meetings, and development programs—and began to develop the ideas that informed the present study. I developed a proposal of my own, which received funding from two sources in 2011. The first was a Doctoral Dissertation Improvement Grant from the National Science Foundation (NSF #1123962 – Doctoral Dissertation Research: Reciprocity, Collective Action, and Political Power in Post-Disaster Resettlements in Andean Ecuador; PI L. M. Whiteford, CoPI A.J. Faas). The second source of funding was a Fellowship in Hazards, Risk, and Disasters (PERISHIP), a joint program of The Natural Hazards Center at the University of Colorado and the Public Entity Risk Institute (PERI) with funding from the National Science Foundation. This study was approved by the University of South Florida’s Institutional Review Board (IRB # Pro00004409), who determined that the study met the requirements for Federal Exemption criteria as outlined in federal regulations [45CFR46.101(b)].

I returned to Penipe in 2011 and rented two rooms from a family in the central township of Penipe, a location that provided ideal access to the nearby resettlements and
the disaster-affected villages in the north. My objective was to examine what I had earlier perceived as the multiple political economic tensions bound up in mingas and reciprocal exchanges in the resettlements. I chose to focus on the two communities of Manzano and Pusuca because they appeared to present distinct cases. Most of the residents of Manzano had been resettled into the Samaritan’s Purse and government homes in Penipe, where there were no productive resources or employment opportunities. While three households in Pusuca had come from Manzano, most came from neighboring villages in Puela Parish, and they now had productive land of their own in the resettlement. Moreover, the institutions that created and administered these communities were very different, which I thought might have important implications for community organization, reciprocal exchange, and political power. Based in my observations in 2009, I returned in 2011 to conduct research guided by the research questions and hypotheses outlined in the previous chapter.

**Research Design**

This study employed an iterative, mixed-method, 3-phase methodological strategy that involved the recursive discovery and corroboration of analytical domains and the evaluation of study hypotheses (Driscoll et al. 2007; LeCompte and Schensul 1999). Before beginning my research activities, I first secured lodging in Penipe, near the resettlement site, and reconnected with key informants and acquaintances in the study sites. Next, I began phase one of my data collection by conducting exploratory observation, key informant interviews, and archival searches to identify specific terms, practices, and events in order to design effective structured interview questions (Bernard 2011:150), while also serving to build relationships, identify key informants, and locate
and enter settings most relevant to the study (Bestor 2002; Cromley 1999). Specific objectives of this phase were to identify village households, household members’ current place of residence, and to develop a thorough list of venues and times of group meetings and assemblies, specific items and services exchanged, and aid and development programs in each community. In the second phase, I administered structured interviews to obtain quantitative indicators of reciprocal exchanges between group members (Mayer 2002, 1974; Schweizer 1997), minga participation, distribution of development benefits and collective resources (Mosse 2005, 1998; Salmen 2002, 1987), occupational and socioeconomic data (Pant 2007; Bebbington 1999), and perceived influence in village affairs and benefit distribution (Lubell et al. 2009; Meinzen-Dick et al. 2004; Salmen 2002, 1987). In the third phase, I conducted focused observation and documentation of participation and influence in decision-making, plus patterns of influence in public negotiations of development strategies and aid allocation (Lewis and Mosse 2006; Mosse 2005, 1998). Copies of all interview instruments are included in Appendix A. In the analysis phase, I compiled and coded both qualitative and quantitative data for descriptive analysis (Bernard 2011:300) and conducted correlations and regression analyses (Thompson 2006) to evaluate and test each of my study hypotheses.

**Sampling Strategy and Participant Recruitment**

I employed an iterative sampling strategy that took place in four phases. I identified the two study groups of Pusuca and former Manzano villagers in the Penipe resettlement during prior research based on my theoretical interest in collective labor organization (mingas), reciprocal exchange, and resettlement, which are not randomly distributed in the general population (Johnson 1990:27). In the second phase, I selected
key informants for brief interviews based on their knowledge of reciprocal exchange practices, collective action, and development programs (Bernard 2011:150; Johnson 1990:65). The reliability of these exploratory data were supported by the degree of saturation, or the extent to which variation in each domain stabilizes, which is expected after six to eight interviews in each group (cf., Guest et al. 2006).

In the third phase, I administered a structured interview to one adult from each household in Pusuca (n=40) and Manzano (n=52) because the household is the primary unit of economic organization in Andean villages and rural resettlements (Mayer 2005; Cernea and McDowell 2000). Reliable measures of variation in reciprocity and collective action must include all households in the community as respondents to present each respondent with a list all households as potential exchange partners (Hanneman and Riddle 2005; Freeman 1979). A random sample of one adult from each household in each village could have controlled for demographic biases in study results but, as with a great deal of ethnographic research, I was concerned with selecting participants who were knowledgeable in the key domains of my study (Johnson 1990:65). Structured interviews were designed to address household exchanges with other households—a subject about which any randomly selected adult could report—and the practices and power relations in mingas and village councils—a subject about which only household members who attended mingas and council meetings could report. I settled on the strategy of developing lists of households with key informants in each community and asking them to tell me which members from each household were most likely to attend mingas and village council meetings. These were the individuals I selected to participate in the structured interviews. I did, however, encourage multiple adult members of the household to
respond to the survey and in more than half of the interviews, both husband and wife provided responses.

The sample for the structured interviews in phase two included all 40 occupied homes in Pusuca and all 52 occupied homes in Manzano, though many homes in Manzano were occupied only occasionally since resettlement (see table 3 for sample and village populations). Many respondents in Manzano had to be tracked down in the resettlements, or else in the nearby cities of Riobamba, Baños, or Puyo. Sample attributes are reported in table 3, and in figures 5 and 6. While the structured interview sample obtained relative parity in respondent gender in Pusuca, respondents were overwhelmingly male in Manzano. Because the sample is based on who participates in mingas and village councils in each site, this is evidence of gender biases in participation in the two sites and not necessarily a sampling bias. Looking at respondent age in table 1, we see that the sample skews younger for Pusuca and older for Manzano. Though mean adult age in Manzano is six years older than mean age in Manzano, it is obvious from looking at figure 2 that younger age groups are overrepresented in the Pusuca sample and underrepresented in the Manzano sample. Similarly, it is also obvious that older age groups are overrepresented in Manzano and underrepresented in Pusuca.
Figure 5. Gender Representation in Population and Sample

Table 3. Study Site Demographics

<table>
<thead>
<tr>
<th></th>
<th>Mean Age Adult Pop</th>
<th>Mean Age Sample</th>
<th>Adult Pop</th>
<th>Total Pop</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pusuca</td>
<td>39</td>
<td>42</td>
<td>72</td>
<td>121</td>
</tr>
<tr>
<td>Manzano</td>
<td>45</td>
<td>55</td>
<td>131</td>
<td>196</td>
</tr>
</tbody>
</table>

To some extent, these figures represent attributes of the sites and not necessarily a bias in the sample. However, because there were obvious reasons to suspect that gender and age characteristics may bias variation in the data, I conducted t-tests and analysis of variance as part of exploratory data analysis of each hypothesis and subsequent analyses controlled for demographic variables as covariates in the model (Bernard 2011:174-176; Timm and Mieczkowski 1997:41).
The final sampling and participant selection stage was for the purposes of participant observation. The objective was to focus on venues, days and times of mingas, meetings, assemblies and other forms of collective action (Mansergh et al. 2006). This information was collected from key informants and observations in both sites. This was easiest in Pusuca because they had regularly scheduled mingas and village council meetings each week and month, respectively, but did also call ad hoc meetings and mingas to deal with emergent issues. Minga days and times might be changed based on the availability of materials, as when sand and stone for concrete structures were dumped by the roadside and had to be hauled before the rain. I therefore had to remain in regular contact with key informants in Pusuca in order to remain aware of the changing schedules of mingas and meetings. In Manzano, however, meetings and mingas were always ad hoc and rarely scheduled in advance. Meetings and mingas that were scheduled weeks in advance were often canceled or rescheduled at the last minute. I had to remain extra attentive in staying abreast of minga and meeting schedules in Manzano. The Cabildo President, Bernardo, was very supportive of my work and we had each other’s cellphone numbers so that he could alert me when there were mingas, meetings, or other key events.

**Figure 6. Age Ranges in Population and Sample**

The bar chart illustrates the age distribution of the population and sample in both Pusuca and Manzano. It shows the percentage of individuals in different age ranges for both the population and sample in each site. The data indicate that the age distribution is relatively similar in both sites, with the majority of individuals falling within the 18-60 age range. However, there are some differences in the distribution between the population and sample, particularly in the older age groups. Overall, the chart provides a useful comparison of the age structures in the two communities.
Yet Bernardo was consistently busy with his leadership duties and his own farm, so it was not uncommon for him to forget to call me when an event of interest was taking place. Fortunately, I realized this early on and had several other relationships with people from Manzano who were always “in the loop” and whom I could rely upon to notify me at my home or whom I would visit regularly in the resettlement.

Over the course of five months in the field in 2011, I worked on nine mingas in Manzano and twenty in Pusuca (see table 4). I attended eleven meetings of the Manzano Cabildo, eight meetings of the Junta Parroquial of Puela, approximately fifteen sessions of various sub-committees in Manzano and Puela (e.g. irrigation, potable water, fiesta planning, etc.), and seven meetings of the residents of the MIDUVI homes in the Penipe resettlement. In Pusuca, I attended all four monthly General Assembly meetings that took place during the time I was in the field. I also attended eighteen different meetings of sub-committees in Pusuca (e.g. irrigation, potable water, ad hoc emergency sessions, etc.). Though I did occasionally miss meetings and mingas in both communities because I was unaware or unable to attend (mingas and meetings in the two sites would occasionally be simultaneous), I participated in and observed a number of instances and contexts that were representative of at least the time period of my research. Furthermore, as with my key informant interviews, I assessed the data I collected based on its saturation, or the extent to which the acquisition of new data in my study domains reached a point of diminishing returns.

**Table 4. Mingas and Meetings Attended During Fieldwork**

<table>
<thead>
<tr>
<th></th>
<th>Mingas Attended</th>
<th>Village Council Meetings Attended</th>
<th>Other Village Meetings Attended</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manzano</td>
<td>9</td>
<td>11</td>
<td>30</td>
</tr>
<tr>
<td>Pusuca</td>
<td>20</td>
<td>4</td>
<td>18</td>
</tr>
</tbody>
</table>
Phase One: Exploratory Fieldwork, Archival Data, and Key Informant Interviews

In the first phase of data collection, my objective was to acquire data on four specific topics. First, as mentioned above, I needed to develop a schedule of mingas and meetings in each site and reliable sources of information for when meetings and mingas were scheduled in order to focus my participant observation on the contexts of interest to my study. Second, I needed to compile a list of households in each site and information on who participates from each household in order to draw a sample of participants in the structured interviews in phase two. Third, I needed information on different aid and development projects in the two sites, which would allow me to develop questions for my structured interview about whether or not households were included in each project. And finally, in order to develop a structured instrument to measure reciprocal exchanges between households, I needed to develop a reliable and representative list of common items exchanged in each community.

Exploratory Fieldwork

I began participating as a laborer in the weekly mingas and attending meetings and events in both sites almost immediately. My objectives were several. First, I wanted to document the venues, days, and times of collective action in order to develop an observation strategy (Cromley 1999:72) that I would later employ to document the decision-making power and the distribution of project benefits (Mosse 2005, 1998; Salmen 2002, 1987) and division of labor in mingas (Ortiz 1994). Second, I wanted to be able to draft sensible questions about the different forms and frequencies of participation in mingas and village meetings. Finally, I saw my participation as a sort of reciprocal
exchange with my study participants. I would contribute at least as many hours of labor as I asked of my participants.

My first meeting with the Manzano community and leadership was the very next day after I arrived in Penipe. I had been informed that there was a meeting of the Junta Parroquial and that Bernardo, Manzano’s Cabildo President, and many other Manzano residents would be there. When I entered the room, Bernardo leapt to his feet and ran to hug me, welcoming me back to Penipe and Puela Parish. After I observed what was a very contentious meeting that served as a quick primer on current issues in Manzano and Puela Parish, Bernardo and I, along with several others from Manzano, met in a separate room in the Junta Parroquial building. I explained my study and objectives and asked for everyone’s permission to work in Manzano and was told that I would have everyone’s full support. I asked when and where they were doing mingas and meetings these days. They said that mingas were infrequent, due to funding issues and the politics of the irrigation canal, but they would organize one in two weeks, where I could get started with my study and present my project to the rest of the community. Two weeks later, I came to the minga, clearing brush on a hillside, and Bernardo called on everyone to sit in a circle and hear my research plans. I told everyone that I was interested in studying inter-household exchanges and community organization and that I wanted their permission to attend community meetings and events, interview one adult from each household, and work on community mingas. I asked for a show of hands from those who were willing to participate and all raised their hands.

I met with Angel, the Pusuca’s Directiva President, just after I returned from my first meeting with Bernardo at the Junta Parroquial. He told me that they were having
their monthly General Assembly meeting the following Saturday and, since attendance by each household was mandatory, it would be an excellent opportunity to present my study to the community. Angel put me on the agenda the following Saturday and, as in Manzano, I explained my intention to study inter-household exchanges and community organization. I then asked for permission to attend meetings and events, interview one adult from each household, and work on community mingas. The response, once I mentioned my interest in working on mingas each week, was a fierce round of applause that culminated in a standing ovation. Fieldwork started off far better than I could have hoped.

Archival Data

Minga organizers and village council leaders throughout the Andes are notorious list keepers (Colloredo-Mansfield 2009). Leaders or their delegates (usually council secretaries) are known for keeping meticulous lists of who does and does not attend each minga and cabildo meeting. I therefore began my fieldwork by visiting the cabildo presidents in each site and, after explaining my research goals and reasons for selecting each community and receiving their permission to proceed, I asked each of the two presidents to share their attendance lists with me so that I could draw a sample of participants. In both sites, I first sat with the presidents and their wives and made a list of each household and then asked them to indicate the primary residence of each household (i.e., do they primarily reside in Manzano/Pusuca or elsewhere?) and the best days, times, and locations to find them. I then made copies of the minga and council lists provided to me by each president and entered these into an Excel spreadsheet. These lists, I thought, would not only help me to draw a sample, but would also serve as an additional source of
data to complement my interview and observation data on household participation in mingas.

As I entered the data, I immediately noticed two things about these lists that affected my ability to use them to draw a sample. First, lists in both sites tended to name only the head of each household, regardless of whether or not the head-of-household had actually attended; that is, although a wife, son, daughter, or peon might have attended the meeting, the lists credited the household for attendance without indicating who, specifically, had actually attended. Secondly, Pusuca leaders kept much more meticulous lists and records than leaders in Manzano. Pusuca, being a young resettlement community with a host of by-laws and formal procedures for participation requirements as well as record-keeping had much more reliable lists. I needed further information in order to draw my sample, so decided to add minga and meeting attendance to my key informant interview agenda.

Key Informant Interviews

Unstructured interviews with knowledgeable key informants form a critical part of the iterative data collection strategies of most ethnographic research (Bernard 2011:213; Johnson 1990:24-29). In order to develop appropriate and reliable questions for structured interviews, it is first necessary to collect information on study domains that will ensure that structured interview questions will speak directly to respondents’ knowledge and experiences (Bernard 2011:202-203; Johnson 1990:29). My objectives were to obtain reliable data on who participates in mingas and meetings from each
household, what items were commonly exchanged in each site, and what development projects were carried out in each site.

Although the attendance lists I collected in each site proved to be unreliable sources of the specific members of each household who typically attended mingas and meetings, it was relatively easy to collect these data by conducting two short key informant interviews in each site. Since cabildo presidents were frequently most likely to take stock of who does and does not attend, I returned to meet with each of them. In each case, the presidents and I reviewed the lists together and they indicated which member or members of each household typically attended mingas and meetings. While these interviews produced more reliable lists than I could have gleaned from the attendance lists, I was concerned that relying too heavily on one powerful gatekeeper in each site might introduce unwanted biases into my sample (Bernard 2011:152). I therefore elected to repeat this list-making exercise with additional informants in each site. I also decided that it would be best to speak with women after first obtaining information from the male presidents of each village. In Manzano, I met with the cabildo secretary and another woman I knew to be a regular participant in all Manzano events. In Pusuca, I also selected the female secretary of the irrigation committee and another woman I knew to be active in all community affairs. Somewhat unexpectedly, there was almost unanimous agreement between the presidents and the women in each site. In most cases, the women merely added more options for each household, often indicating that a husband and wife tend to alternate, or that while the father tended to attend meetings, his son would usually work on the mingas. I now had the data necessary to select the appropriate respondent from each household for my structured interview. Since men were overrepresented on the
lists in both sites, particularly in Manzano, where the lists indicated that both men and women attended from a given household, I selected the woman for participation.

The next key informant interviews focused on finding out what development projects had been carried out in each site in the past two years. I first consulted with the presidents of each village. I then met with the head of the Municipal Development Office and then the National Comisario in Penipe. I further consulted with the Esquel Foundation’s delegate representative in Pusuca. I decided to focus only on projects that had already been carried out, since project inclusion would be less ambiguous. In contrast, it would have been more difficult to determine inclusion in the Pusuca irrigation canal, where construction was in progress. In all, I identified four project benefits or benefit categories for each site:

- **Manzano** – food rations from the Ministry of Economic and Social Inclusion (MIES), animal feed rations from the Ministry of Agriculture, Farming, and Fisheries (MAGAP), subsidized tractor service from the Junta Parroquial of Puela, and inclusion in any agricultural extension projects carried out by different state and non-government organizations.

- **Pusuca** – food rations from MIES, animal feed rations from MAGAP, inclusion in any of several NGO-sponsored greenhouse projects, and inclusion in any agricultural extension projects carried out by different state non-government organizations.

The final step was to interview people in both sites and to ask them what items and services they exchanged with others in their respective communities in order to develop a reliable set of exchange items and services for a structured interview (Schweizer 1997). Because I was concerned about a representative list of items and
services, I needed to be strategic in my selection of informants. Based on Guest et al. (2006), I decided to aim for “saturation,” which involves repeating interviews with a homogenous pool of informants until you reach a point where you are adding little or no new variation in your domains. In a homogenous sample (typically by gender and site or context), one should expect to achieve saturation after approximately 6-8 interviews (cf. Guest et al. 2006). I therefore began by interviewing men and women of different ages in each site and asking them to name the different items that they or their neighbors might exchange with one another. For the domain of inter-household exchange, I found that I achieved theme saturation in Manzano after six interviews and in Pusuca after five. In Manzano, I interviewed three women and three men of varying age and in Pusuca three woman and two men. The resulting exchange domains were identical for each community: a) meals, or prepared food; b) raw produce; c) moneylending; d) lending tools; e) randimpa, an Andean practice of reciprocal labor exchange; f) peon labor, or paid day laborers (see chapter 5); g) childcare. These became the exchange categories included in my structured interview and they are described in greater detail in the following chapter. I ultimately eliminated childcare because, unlike the other categories, not every household had an equal opportunity to engage in childcare exchanges (e.g., childless and elderly households). They yielded an ideal range of both material and service exchanges and would allow me to compare the giving and receiving of each. Each household would be asked if they had exchanged (given or received) any of these items with each household in their respective sites in the past year.
Phase Two: Structured Interviews

Hiring a Field Assistant

I knew it would be difficult to administer 40 structured interviews in Pusuca and 52 in Manzano on my own, in addition to my participant observation objectives, so before entering the field I decided to hire a field assistant. I opted against hiring a local, since my interview questions involved perceptions of power and fairness that I feared my respondents would not answer candidly to a local. I therefore reached out to several universities and posted job announcements on several Ecuadorian blogs for travelers and volunteers. The universities offered no contacts and after interviewing, via Skype, several applicants from the blog posts, I settled on Roberta, a recent graduate of a Master’s program in Education from Philadelphia. Roberta was fluent in Spanish and had majored in international development as an undergrad and spent four months in highland Ecuador doing research for her senior thesis. She was now hoping to return to Ecuador for a year to travel and hopefully build professional experience. I offered her a monthly stipend for three months, which was part of my budget from my PERI Dissertation Fellowship, and free lodging in the house I was renting in Penipe in exchange for five days work per week, which entailed conducting at least three interviews per day and entering her interview data in Excel.

Roberta arrived in early September and I gave her two weeks to get to know Penipe while I conducted my archival research and key informant interviews and drafted and field tested the structured interview. Roberta accompanied me as I field-tested the final interview with three participants outside of my sample. Then, as I began administering the tested and revised instrument, I gradually let Roberta take over the
administration of each part of the interview until I observed that she was capable of administering it on her own. Although Roberta would go on to administer a majority of the structured interviews, I continued to conduct many myself, as I wanted to be involved in each phase of the research.

*The Structured Interview*

The first part of the structured interview elicited information on reciprocal exchanges between each household, as these data were central to all four of my hypotheses. Observations alone could not necessarily establish such a definitive correlation between power and reciprocal exchange relations, as it would be virtually impossible to observe and record such a quantity and diversity of exchanges. Using the sample I derived in phase one, Roberta and I administered structured interviews to one adult from each household in Pusuca (n=40) and Manzano (n=52). The structured interview draws on specific examples derived from key informant interview data collected earlier. The interview addresses reciprocity using a social network analysis tool that presents respondents with a list of specific exchange items and asks them to indicate whether or not they have exchanged (given and/or received) particular items or categories (e.g., food, tools, etc.) with a list of each household in the group and to indicate the nature (e.g. kin, neighbor, friend, etc.) of their relationship with each (Mayer 2002, 1974; Schweizer 1997; Mitchell 1991). For reference, the exchange portion of the interview has been included in Appendix A. This portion of the interview generated the following individual level, interval-ratio variables developed for the analysis of exchange relations by Freeman (1979) calculated for each individual’s exchanges of material and labor separately (Mitchell 1991; Mayer 1974):
• **in-degree centrality** – the ratio of total number of services or material items received to the maximum possible number of opportunities to receive services or material items from the group through reciprocity and collective action

• **out-degree centrality** – the ratio of total services or material items provided to the maximum possible number of opportunities to provide services or material items from the group through reciprocity and collective action

• **degree centrality** – the ratio of respondents’ reported to maximum possible reciprocal relations of any kind with the group, which is essentially a measure of their overall exchange ties with the group in any given category, regardless of whether the item or service is given or received

These centrality measures were calculated for each of the four items and two services referenced in the exchange portion of the structured interview. Since I am also interested in each household’s overall participation in all exchanges, I also calculated each of the three centrality measures for each household’s total exchanges. This allowed for a great deal of flexibility in examining the patterned flows of exchanges. I only included items and services confirmed by both parties to the exchange. That is, when only one household claims they gave an item to another household, it is only included if the other household reported receiving that item. This approach was chosen as a means to control for informant accuracy, which can often be problematic with exchange elicitation (Bernard et al. 1984). By relying on only those exchanges confirmed by both parties, I can be more confident in the reliability of the data.

Because my third hypothesis (H3) concerns the extent to which powerful actors and their allies receive greater shares of development benefits than other members of the
study groups, I needed to find a systematic way to map allegiances in the group. The network exchange data allowed me to do this by calculating another kind of centrality measure, eigenvector centrality, which measures the extent to which actors in a network are connected to other highly-connected actors (Bonacich 2007; Hanneman and Riddle 2005:157).

The second part of the interview presented respondents with questions on various topics related to the study. First, because I wanted to complement official minga attendance records with respondent accounts, respondents were asked to report on the frequency of the participation and absence from mingas and to provide open-ended explanations for each (H1 and H2). Second, because I was interested in the extent to which certain actors were central in brokering access to development resources (H3), respondents were asked to name who in their communities they would consult in order to learn of opportunities with outside institutions. The number of times each household was named as a source of access to outside organizations was recorded as a brokerage score. Respondents were asked to indicate who in their village had the most influence in deciding village affairs, such as minga projects and who does what work in mingas, and development projects (H3a). Questions ask respondents for their perceptions of the degree to which group decisions reflect the respondent's interests or are dominated by other actors or groups of actors. They were also asked about the benefits of participating, if they felt that they benefitted from mingas, and who, if anyone, benefitted more or less (H3b). Respondents were then asked whether they received specific relief aid or were included in particular development projects (H3b) (Salmen 2002, 1987). Finally, the interview elicited basic household demographic and socioeconomic data based on an
asset inventory model used in rural development studies, including occupations of household members (H1) (Jones 2003), productive assets (land, animals, equipment, etc.), and general household items and amenities (Pant 2007; Bebbington 1999).

**Phase Three: Strategic Observation**

According to Bernard (2011:150), participant observation must always be strategic. Participant observation is often a necessary component of anthropological fieldwork because anthropology has long been concerned with investigating what people actually do in addition to what they say (Bernard 2011:145; Bourdieu 1990, 1977). This phase of data collection began with my exploratory participant observation in phase one and continued throughout the entire period of fieldwork. Upon first entering the field, most anthropological methods manuals stress the need to employ exploratory, or open-ended, observation techniques in order to develop familiarity with the research site and begin to build relationships upon arriving (Bernard 2011; Schensul et al. 1999). A common recommendation is to begin by mapping the social and spatial environment or scene, observing and recording public behavior, and eliciting feedback and information from chance informants (Bernard 2011; Bestor 2002; Trotter 1999; Schensul et al.1999). It is often difficult to understand what is significant in the initial stages of participant observation, so it is common for research manuals to emphasize recording as much detail as possible and with minimal interpretation (Bernard 2011:181; Schensul et al.1999:96). The purpose of these exercises is to orient the researcher to his surroundings; to begin developing relationships and a framework for interpreting behavior, including the spatial distribution of property, institutions, activity, structural and infrastructural features of the research site, and; to elicit information that can be drawn upon at later stages of the
project (Bernard 2011:144; Schensul et al. 1999:102-113). As data accumulate, the
ethnographer can begin to engage in a constant comparison of variables in order to
inform each succeeding stage of the research process and develop increased proficiency
in the interpretation of situations and relationships.

The first strategic aspect of observation is to locate and enter the sites of the
behavior the researcher is interested in. As mentioned in the sampling section above, I
worked on nine mingas in Manzano and twenty in Pusuca. I attended eleven meetings of
the Manzano Cabildo, eight meetings of the Junta Parroquial of Puela, approximately
fifteen sessions of various sub-committees in Manzano and Puela (e.g. irrigation, potable
water, fiesta planning, etc.), and seven meetings of the residents of the MIDUVI homes in
the Penipe resettlement. In Pusuca, I attended all four monthly General Assembly
meetings that took place during the time I was in the field. I also attended eighteen
different meetings of sub-committees in Pusuca (e.g. irrigation, potable water, ad hoc
emergency sessions, etc.). I participated in and observed a number of instances and
contexts that were representative of at least the time period of my research.

The second component of strategic observation is determining what to record and
how to go about doing so (Bernard 2011:146). Because I was interested in who
participates in mingas and I felt that village record keeping (especially in Manzano) was
unreliable on its own, I took care to take attendance at each event I attended, often adding
people as they trickled in after mingas or meetings had begun. I was also interested in
how power was exercised in these contexts (H3).

When researching development contexts, Lewis (2005) and Mosse (2005; Lewis
and Mosse 2006) recommends examining the ways in which power is exercised in
negotiations by documenting the decision-making process. They advocate careful attention to who sets decision-making agendas, who participates and how, and whose contributions to the decision-making process triumph and whose are marginalized. There may also be degrees of control and domination at work in these contexts (Mosse 2007). Certain actors may include some in the distribution of resources while excluding others and more powerful actors may be able to command the behavior of others (Narotzky and Moreno 2002).

In each minga and meeting I attended, I documented the actors, processes and sequences of interactions—focusing on suggestions, interests, values, problems, strategies of action presented, and which concepts, decisions and interests prevail (Long 2001; Mosse 1998; Schweizer 1997). At the end of each day, I typed up my fieldnotes into detailed profiles of each event and day (Bernard 2011:365). My observations at meetings focused on patterns of political influence by noting who spoke, what positions were taken, and what positions prevailed in order to develop detailed portraits of power relations and decision-making processes. While participating in mingas, I noted these same factors, but also kept track of the division of labor, noting who assigned and performed different tasks and what volume of work was performed by each. During mingas, I also took note of who helped whom with their tasks and who shared food and tools in order to complement my interview data on reciprocal exchange.

I also frequently visited with all of my informants and village leaders in both sites and often accompanied leaders and others as they recruited participants in mingas and meetings. I was therefore able to observe how minga labor and political participation
were organized and to discover things I had not anticipated, such as the role of outside organizations in the organization of mingas.

As I typed up my fieldnotes into detailed profiles of each event, I recorded who was present, what was done, how things were done, and who spoke about what. I focused on who set agendas, whose asserted opinions in decision-making, and whose opinions prevailed (Mosse 2005). I also created detailed profiles of the minga recruitment process, which was often in the context of village meetings in Pusuca, but was more informal in Manzano, where the Cabildo President would go door-to-door recruiting participants in the resettlements. Using these detailed case descriptions, I was able to produce “a credible, rigorous, and authentic story” (Fetterman 2010:1) of exchange practices, political processes, and the organization of mingas in both sites.

**Data Coding Process**

After typing my fieldnotes into word processing software, I then imported them into MAXQDA, a software package for coding and analyzing qualitative data. I then developed an inductive content coding system based on the core domains of reciprocity and participation (Mayer 2002, 1974; Mitchell 1991), political influence (Mosse 1998; Schweizer 1997), benefit allocation (Lewis and Mosse 2006; Salmen 2002), and emergent themes (Altheide 1987) to generate searchable meta-categories for exploring connections between variable domains during fieldwork (cf. Lyon 2002; Fischer et al.1996). This approach to fieldnote management and coding was an invaluable aid in the discovery of themes in my data, which further enabled me to produce robust descriptive analyses and, where appropriate, derive qualitative and ordinal variables that measured variation in the core domains of interest.
I entered reciprocal exchange data from structured interviews into UCINET 6 (Borgatti et al. 1999) software in order to generate interval-ratio measures of in-degree centrality, out-degree centrality, degree centrality, and eigenvector centrality for each individual respondent (Opsahl et al. 2010; Bonacich 2007; Freeman 1979). Centrality measures were generated for the categories of materials and labor, as well as for each specific exchange item or service elicited in the interview that was confirmed by both households. I then exported these variables to SPSS to test for differential and combined effects on dependent variables (Driscoll et al. 2007). Benefit distribution and perceived influence variables included binary indicators of the receipt of aid and project inclusion, and Likert-scale ratings of perceived benefits of collective action (Salmen 2002, 1987) and perceived influence on collective decisions (Lubell et al. 2009). Respondents’ site of primary residence was also collected in the structured interview and, using GoogleEarth, a desktop mapping tool, I was able to generate continuous distances between the research communities (where mingas took place) and each respondent’s primary residence. Sociodemographic data were measured by degree of household involvement in wage labor (Jones 2003) based on the number of employed adults, as well as primary production based on land, animals, and labor involved. Gender was included as a variable in all analytical procedures, and combined household employment and assets were used to control for wealth (Tashakkori and Teddlie 1998).

In order to test hypothesis 3a, it was necessary to convert observations of influence in decision-making in the two study sites to ordinal quantitative variables amenable to statistical analysis. This is a common approach that arguably reduces the quality of qualitative data (Bernard 1996), but this quality is not lost when analyses are
complemented by ethnographic description, as I do in the ethnographic setting and discussion chapters. In order to measure influence, I developed three general categories of attendance, participation, and agenda-setting/decision-change. For each meeting I observed in each site, I recorded the presence or absence of each household in the village (attendance). I likewise noted who spoke or offered opinions on each topic discussed (participation). Finally, I noted when each individual’s (as representatives of their households) participation produced an agenda item for decision-making or else contributed to the taking or changing of a specific decision or course of action for the group (agenda-setting/decision change). Each of these factors was tallied by household in a roster for each meeting. I then converted these tallies to an ordinal scale that corresponded to the scales of influence elicited of respondents in the semi-structured interview: never/almost never (0), sometimes (1), and almost always (2). The first value of “never/almost never referred” to household scores of 10 percent or less in each category. The second value of “sometimes” referred to household scores greater than 10 percent and less than or equal to 60 percent in each category. The third value of almost always referred to household scores greater than 60 percent in each category. The final influence score was a composite of all three sub-categories of attendance, participation, and agenda-setting/decision-change (0-6). While this measure was relied upon for analyzing the relationship between reciprocal exchange participation and political influence (H3a), it is important to note that this measure was not the only factor employed in interpreting political influence in the study sites. The ethnographic setting and discussion chapters rely heavily on fieldnotes and observations about the decision-making process in each site that serve to contextualize and explain these dynamics.
Analyses

Procedures for data coding and analysis were guided by my research questions and hypotheses and draw upon multiple sources of data strategically collected at each stage of data collection. All data were entered into SPSS and hypotheses were subsequently evaluated using two primary strategies. The first was descriptive and the second, statistical. In the first part of the results chapter, I draw on my extensive fieldnotes drawn from participant observation of mingas, reciprocal exchange practices, and political contexts to present ethnographic descriptions of each, against which I evaluate the assumptions of each hypothesis. The second, statistical strategy is an iterative approach to the exploration and confirmation or rejection of expected relationships between variables in each hypothesis. This begins with means comparisons using independent t-tests and analysis of variance to explore for significant associations between variables and to examine the extent to which the relationships are linear, curved, or parabolic (Thompson 2006), although relationships are expected to be linear.

If means comparisons did not indicate a significant association between variables, no further analysis was performed and the statistical test of the hypothesis was rejected. Where significant associations were detected, I proceeded by conducting correlation and regression procedures to test the strength and direction of the variable correlations (Greenfield et al. 1998). Where appropriate, I employed non-parametric (Kruskall Wallis, ordinal regression) tests of significance, where data did not exhibit normal distribution (Thompson 2006). Where I observed non-linear relationships, I performed appropriate data transformations and selected alternative tests. For example, in some cases relationships appeared curvilinear because of extreme high and low values, but this
variation was compressed by converting the data into natural logs (Thompson 2006:405-406), a very simple procedure in SPSS. Another alternative was to use Spearman’s R, a non-parametric correlation which tests only the *ordinal* association between variables (Thompson 2006:118-121). Each analysis is presented in the following chapter.
CHAPTER FIVE: STUDY RESULTS

In this chapter, I present the results of the analyses conducted to test study hypotheses. After first presenting my hypotheses, the first portion of the chapter provides descriptive definitions of three key domains of analysis. Although they are described in the ethnographic setting chapter, I provide concise descriptions of mingas, reciprocal exchange practices, and the decision-making contexts that are examined as a part of the analytical procedures involved in testing study hypotheses. The next section of the chapter reports on the statistical tests of study hypotheses, which are complemented by qualitative data collected in the interview process.

The presentation of analyses and findings follows the same pattern for each hypothesis. I begin with an explanation of the hypothesis, followed by a description of the variables employed in the evaluation of each hypothesis. Analyses are then presented in the order in which they were conducted, beginning with simple exploratory analyses of the relationships between the variables in the model and then proceeding to appropriate correlation and regression models where applicable. This is followed by interpretations of results and ethnographic descriptions of observed relationships of the key domains in each hypothesis.

Three Domains of Analysis: Reciprocity, Mingas, and Decision-Making

In order to provide a clear understanding of the terms and concepts being examined in the hypotheses, I provide succinct descriptions of the three principal
domains involved in the analytical procedures that follow. These are reciprocity, mingas, and decision-making contexts.

*Forms of Reciprocity in Manzano and Pusuca*

Exchange practices in Manzano and Pusuca have very much in common, such that it is possible to discuss them together in one section. Upon first arriving in Penipe in August 2011, I conducted key informant interviews to collect information on the items exchanged in each village. After conducting eleven interviews—six in Manzano and five in Pusuca—I had a redundant list of four materials and three services commonly exchanged in each community. These were meals or prepared food, raw produce, moneylending, lending tools, *randimpa* (“labor reciprocity”), peon labor, and childcare.

The first material exchange was that of meals, or prepared food, which was cited by respondents in both sites as the most common exchange item. In both communities, it was common to offer plates of food to neighbors and kin or to invite them into one’s home for a sit-down meal. Frequently, folks in both sites would share *la tonga* (packed lunch) during mingas, where people would sit in circles and serve themselves from the small pots of food that others brought with them. These exchanges were of a more generalized type of reciprocity, ostensibly charitable gestures where no strict accounts of debt were kept and recipients were not expected to reciprocate within a given timeframe. However, habitual failure to reciprocate could result in gossip and the deterioration of relationships. Additionally, peons are provided 2-3 meals per day, in addition to their cash payments.

The next material exchange was raw produce, which respondents in both sites reported sharing, typically at harvest time when produce was in abundance. There were
both generalized and balanced forms of produce exchange reciprocity. In the more
generalized variety, people would simply share token quantities of a harvest as a gesture
of friendship or goodwill, as with prepared food. At other times, people would contribute
produce to festive occasions, donating food items to feed a band or distinguished guests
at a fiesta or formal event. In the more balanced variety of produce exchange reciprocity,
people might offer a portion of their yield to those who provide help in the harvest, or
make typically short-term loans of animal feed to kin or neighbors experiencing a
shortage.

Moneylending was cited by all but one of the eleven respondents as something
that might be exchanged by kin or neighbors, though it was more common among kin
than non-kin. These small loans could be generalized or balanced, which usually
depended on the amount of the loan. Several respondents pointed out that money was
rarely lent in significant quantities. Instead, someone might lend a neighbor bus fare or
enough for a small purchase at a local store, and these frequent small loans would take
place between typically close relations who might spontaneously offer to pay each other’s
bus fare or a beverage or treat at a local store. Sometimes “debts” would be repaid only
when the original lender needed a loan from the original borrower; until then, they would
remain open and unclaimed. In other cases, where relationships were less close or when
the amount lent was more significant (e.g., >$20), people would keep better accounts of
loans and debts, expecting them to be repaid within a given timeframe. I knew of several
instances in each site where one household lent another several hundred dollars and
established a fixed repayment schedule. However, there were also cases where people
would “loan” money to the poorest households in the village for foodstuffs and children’s clothing and not expect to be repaid.

It was very common for people to loan *herramientas de campo* (“field tools”), such as hoes, picks, shovels, wheelbarrows, and hatchets, which were present in practically every household. This could be when a neighbor had recruited a work party (paid or volunteer) to tend to their fields and did not have enough tools of their own to supply their laborers. At other times, people lent less common tools, such as chainsaws and tractors. In all cases, these tools were lent merely for the day or perhaps for the duration of a task that might take several days. Though the tools were always expected to be returned in a given timeframe, these exchanges were typically part of a generalized reciprocal exchange repertoire, where the parties involved would also do favors for one another or periodically exchange food and raw produce.

*Randimpa* is an Andean practice of reciprocal labor exchange that resembles what many people have described elsewhere as minga. Randimpa is a balanced form of reciprocity, in which one day of labor is expected to be repaid by one day of labor, though the intervals between exchanges might vary. A man may work on another man’s field for a day’s randimpa, but he may not call on his partner to labor on his field immediately after. Instead, he will wait until he has a need to call in his randimpa credit. However, the exchanges tend to be somewhat immediate, as most households experience the need for labor inputs beyond what they can sustain internally during the same periods (i.e. planting, plowing, and harvest). When I first inquired about randimpa in the villages, many people told me the practice was in decline as people could no longer spare the time to repay randimpa labor in the past. One informant told me that if he had twelve people
work his land one day, he would then be tied up working for twelve days for the others and could not attend to his own work. When I shared this with another informant, she laughed and said “what more do you have left to do this week once you’ve had twelve people work your land?” In my key informant interviews that preceded the structured interview on exchanges, I asked each of them to tell me the last time they engaged in randimpa and each said it was within the last two weeks or one month. However, as my participant observation continued, I noticed that those who tended not to engage in randimpa were those who were employed at least part time and could not balance one work obligation with the other.

The next service exchange reported and observed in the study sites was peon labor. Peon is paid labor, but almost always based on personal relationships—often kinship. It is virtually unheard of to hire a stranger as a peon. Instead, these are relationships that typically span years, if not generations, with a given family consistently hiring peons from another specific family. The hiring family typically has landholdings and agricultural labor demands in excess of what they can provide within their own household and the peon family tends to not have enough land to sustain their household’s resource needs through market or subsistence production. Peons may be hired for agricultural work or any type of physical labor and, in Pusuca far more than in Manzano, they may be hired as surrogate minga labor. Men earn a range of $10 - $13 per day, plus two to three meals. Women will earn less, typically about $8 - $10 per day. The pay disparities are typically explained by common perception that men perform more work than women in the same time period. Also, women tended to be accompanied by their (often several) young children, who were also expected to be fed two to three meals.
Childcare was another service exchanged between households. Though not mentioned in Manzano, or by any of the men in Pusuca, three female informants in Pusuca out of the initial eleven interviewed in both sites mentioned childcare as a common form of exchange. Usually only among kin or close friends, childcare could include babysitting for a day or portion of a day or merely accompanying young children to and from school. Childcare was usually for infants or children younger than about six years old. It was not mentioned in Manzano, as the population was older and there were few children of this age range. In Pusuca, however, several women from female-headed households relied on one another to look after each other’s children or accompany them to and from school while they worked in the fields or on mingas.

*Mingas in Manzano and Pusuca*

There were two kinds of mingas organized in Manzano and Pusuca—irrigation mingas and what were referred to as community mingas—and both had certain distinct features in each community (see table 5). Both communities maintained a system of *rayas* (checks) to keep track of participation for both community and irrigation mingas, although the raya system was much more strict in irrigation mingas in both communities and in Pusuca overall. In both sites, community mingas were organized by the village councils (cabildo in Manzano and directiva in Pusuca). In Manzano, irrigation mingas were organized by the Irrigation Committee for Parroquia Puela, which organized all six villages in the parroquia by notifying the respective cabildos of minga days and times. Irrigation mingas in Pusuca were organized jointly by the Directiva and Pusuca’s own Irrigation Committee. However, it is important to point out that much of the decision making and organizing of Pusuca mingas also took place outside the community. At the
time of my field research, all mingas, including community mingas, took place on the irrigation canal. The canal was jointly funded by Esquel, the World Bank, and the Provincial Council of Chimborazo and they employed engineers who managed work and design. The Esquel Foundation also had a community coordinator, Martha, who maintained a regular presence in Pusuca and played a key role in administering village affairs. Martha and the irrigation engineers set the work schedules on the canal, based on the periodic delivery of materials and the progress of construction. Martha and the engineers would attend village meetings themselves to lay out schedules and work deadlines to the community directly, or else convey these messages through the Directiva President or the Irrigation Committee President.

Table 5. Minga Characteristics in Research Sites

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<tr>
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<th>Manzano</th>
<th>Pusuca</th>
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</thead>
<tbody>
<tr>
<td><strong>Tarea</strong></td>
<td>No</td>
<td>¾ day work</td>
</tr>
<tr>
<td></td>
<td></td>
<td>full day work</td>
</tr>
<tr>
<td></td>
<td></td>
<td>specific task completion (e.g., 10m ditch, haul 50 sacks of stone)</td>
</tr>
<tr>
<td><strong>Multa</strong></td>
<td>No</td>
<td>$20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$10</td>
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<tr>
<td></td>
<td></td>
<td>$20</td>
</tr>
<tr>
<td><strong>Frequency</strong></td>
<td>every 6-8 weeks</td>
<td>every 2-4 weeks</td>
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<tr>
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<td></td>
<td>weekly</td>
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<tr>
<td></td>
<td></td>
<td>weekly</td>
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<tr>
<td><strong>Organized by</strong></td>
<td>Manzano Cabildo</td>
<td>Parroquia Puela Irrigation Committee</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Directiva and/or Esquel Representative</td>
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<tr>
<td></td>
<td></td>
<td>Directiva, Irrigation Committee, and/or Esquel Representative</td>
</tr>
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</table>

Irrigation mingas took place weekly in Pusuca and one or two times per month in Manzano. Manzano villagers would work alongside villagers from throughout Puela on irrigation mingas, although folks tended to work among others from their own village. Men and women generally worked alongside one another doing similar tasks, such as
hoeing weeds and growth from along the canal or clearing growth and debris within the canal. Cabildo presidents performed similar tasks, but often walked the canal directing work and conversing with other leaders. Minga workers would have to work from 8am until the work party was called by Irrigation Committee leaders, which was usually around 2 or 3pm, in order to earn a raya for the day. A household could earn an extra raya for each additional worker on the minga. In contrast, work on irrigation mingas was much more regulated in Pusuca. In order to earn a raya, a household had to complete an assigned tarea (task), which was usually determined by project engineers. This meant that every household had to perform an equal amount of work, not an equal amount of time, as in Manzano and Puela. One tarea I participated in involved digging a trench, ten meters in length, one meter deep, and a half meter wide. Some of the younger men were able to complete this task in half a day, while it took others several days. Other tareas were to carry 50 shovelfuls of sand and 50 shovelfuls of rock in grain sacks from roadside deposits to work sites 100-200 meters away. Men generally carried 10-12 shovelfuls per sack, while women and older men would carry 3-6 shovelfuls per sack and therefore make two or three times as many trips as the men. In some cases, multiple members of the same household would work just to complete one tarea and earn just one raya for the job.

In both sites, households could send peons (hired hands paid an average of $10 plus two meals per day) as substitute laborers or as extra laborers to double their rayas. In both sites, the multa (fine) for non-participation in irrigation mingas was $20 per minga. However, households that were atrasados (behind in rayas) were frequently given
opportunities to make up for missed days by working extra days or sending multiple household members or peons to complete multiple tareas.

Community mingas are generally more informal in both sites and take place once a week in Pusuca and are more ad hoc in Manzano, taking place approximately every 6-8 weeks. For community mingas in both villages, rayas were assigned for working until the entire work party completed a task, not for tareas assigned to each household. In 2011, community mingas in Pusuca also worked on the irrigation canal, although I knew them to work on other projects in 2009, such as building a community park, or rain catchment systems. A community minga working on the irrigation canal in Pusuca would usually run from 8am to 4pm and typically involved clearing debris from newly dug trenches along the canal or carrying PVC pipes from roadside deposits to work sites deeper in the hills. Unlike the regimented irrigation mingas, men would usually take on most of the heavy lifting and perform more work than women in community mingas in Pusuca. In Manzano, the work day for community mingas was generally shorter than in Pusuca. They begin around 8am and generally ran until 1 or 2pm.

During my time in the field in 2011, I participated in mingas to repair the casa comunal (village meeting house), to clear overgrowth from potable water tanks, to repair village roads and paths, and to cut and pile brush and timber for a village festival. As in community mingas in Pusuca, there was a more noticeable division of labor in Manzano community mingas than in irrigation mingas. Men generally worked with tools, while women generally worked with their hands. However, unlike in Pusuca, in community mingas in Manzano the greater labor burden was often on the women. For example, on two mingas to cut and pile brush and timber for village festivals, men worked high on a
steep hill with machetes and one or two chainsaws to fell trees and cut branches, while women and some children hauled huge bundles of long branches to piles at the bottom. The labor of hauling the branches and descending and ascending the hill was far more arduous than the work of cutting branches and many women and children sustained injuries from jagged stumps and branches in the process. Both villages kept track of rayas for community mingas, but only Pusuca had a multa, which at $10 was only half that of the irrigation mingas ($20). In Pusuca, people do send peons to work community mingas, but this is uncommon in Manzano, as there is no multa. Rayas are more a form of social capital in Manzano community mingas and, while there is a social capital facet to rayas in Pusuca, there is also a system of penalties for non-participation.

Decision-Making in Manzano and Pusuca

The primary source of data on decision making is direct observations of village council meetings. In Manzano, this is the Cabildo, whose meetings are ad hoc and take place every two to four weeks. In Pusuca, this is the Directiva, whose meetings take place on the first Saturday of every month. In addition to the cabildo, Manzano also has a Potable Water Committee, a Seguro Campesino Committee (Peasant Insurance), and a Caja Comunitaria (community savings and loan), but the affairs of these committees are addressed in cabildo meetings. Pusuca too has all of these organizations, except for the Seguro Campesino, and their meetings are held apart. Because Irrigation Committee meetings, which were held monthly, were attended by all of the community and were an important context for decision making at the time of my research, I include observations from these meetings as part of my analyses as well.
Hypothesis 1

Hypothesis 1 tests the assumption that minga practice is disrupted by transition to wage labor and displacement. Specifically, the hypothesis expects that household participation in mingas will be negatively associated with wage employment and the distance between the study site (Manzano or Pusuca, where mingas took place) and the household’s primary residence \( (H1) \). Minga participation is measured using minga attendance records obtained from village leaders in both sites and minga attendance recorded during fieldwork to produce an interval-ratio measure of minga attendance for each site. Alternative measures of minga attendance were obtained through key informant interviews in each site, where village council secretaries ranked the reliability of each household’s minga participation, and from structured interviews, where each respondent ranked the reliability of their own household’s minga participation.

Smallholder primary production accounts for the vast majority of economic activity in the study sites and in Penipe Canton overall (see chapter 3 and table 6 below). Most adults (69%) in Penipe Canton were primary producers of cultivars or animals (47% landholdings < 1ha, 71% < 2ha), and less than half (40%) engaged in wage laborer. A significant cohort (20%) was landless dependents of local landlords for access to productive land. Nearly half (47%) of households sent some share to market. It is possible that resettlement prompted increased market production, but I did not have sufficient data to test this. However, most (79%) reported crop sales prior to resettlement, although soil contamination from volcanic ash reduced production to meager fractions of prior levels.
At the time of research, only 8 percent of the population of Chimborazo province was employed in private enterprise (INEC 2010). This number jumped to 14 percent when public employees are included and to 17 percent when we include agricultural employees (e.g., *jornaleros*) (INEC 2010). Within the rural population of Chimborazo, only 3 percent of the rural population was employed in private enterprise, a number that increases to 4.5 percent when public employees are included and to 9.5 percent when agricultural employees are included (INEC 2010). As Table 6 shows, wage employment in Pusuca was proportionally nearly double that of Manzano.

### Table 6. Economic Activity in Research Sites and Canton Penipe in 2011

<table>
<thead>
<tr>
<th></th>
<th>Manzano</th>
<th>Pusuca</th>
<th>Penipe Canton</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Production (households)</td>
<td>99%</td>
<td>90%</td>
<td>65%</td>
</tr>
<tr>
<td>Wage Employment (adults)</td>
<td>18% (n=25)</td>
<td>32% (n=23)</td>
<td>na</td>
</tr>
</tbody>
</table>

Wage employment data were collected in the structured interviews, in which respondents indicated the occupation of each adult member of the household. These data were then calculated into two measures. The first is the percent of wage employed adults in each household and the second is an ordinal measure of percent of wage employed adults. Residential distance data were calculated using GoogleEarth georeferencing software to calculate the distances along roads between each study site (where mingas took place) and each household’s primary place of residence, as indicated by respondents in the structured interviews. These distance measures were then converted to natural logs because the data were positively (right) skewed and a natural log helps to normalize the data in order to satisfy assumptions of normality required by analytical procedures.
Wage Labor and Minga Participation

The first step in the analyzing the relationship between minga participation and wage labor was to conduct an independent t-test to see if mean minga attendance for households with no wage employees was significantly different from households with at least one wage employee. For Manzano, the t-test failed to reveal a statistically reliable difference between mean minga attendance for households with no wage laborers ($\bar{x}=2.7$, $s=3.1$) and households with at least one wage laborer ($\bar{x}=2.4$, $s=3.7$), $[t(50) =.303, p=.763]$ in Manzano. I then performed an analysis of variance test for the association between mean household minga participation and an ordinal measure of household wage employment [(0) none; (1) < 50%; (2) 50% or more] and found no significant association.

<table>
<thead>
<tr>
<th></th>
<th>Manzano</th>
<th>Pusuca</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Wage Employed</td>
<td>38</td>
<td>20</td>
</tr>
<tr>
<td>&lt;50% Adults in HH Employed</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>≥50% Adults in HH Employed</td>
<td>8</td>
<td>16</td>
</tr>
<tr>
<td>Total</td>
<td>52</td>
<td>40</td>
</tr>
</tbody>
</table>

In Pusuca, an independent t-test did reveal a statistically reliable difference between mean minga attendance for households with no wage laborers ($\bar{x}=9.9$, $s=1.2$) and households with at least one wage laborer ($\bar{x}=7.6$, $s=2.9$), $[t(25.2) =3.21, p=.004]$. Since the t-test revealed a significant difference in mean minga attendance in Pusuca (see figure 7), I then converted percent of household wage laborers to an ordinal variable [(0) none; (1) less than 50%; (2) 50% or more] and conducted an analysis of variance. Again, the analysis of variance found a significant difference in mean participation for each of the three ordinal categories of wage employment per household [$F(2,37)=6.78, p=.003$].
The next step was to repeat these same exploratory analyses to examine the relationship between residential distance (i.e., the traveling distance between a respondent’s primary residence and the study sites where mingas took place) and minga participation. In Manzano, an independent t-test did not reveal a statistically reliable difference between mean minga attendance for households whose primary residence was in Manzano ($\bar{x}=3.87$, $s=3.4$) and households whose primary residence was outside Manzano ($\bar{x}=2.2$, $s=3.1$), $[t(50) =1.76, p=.085]$. An independent t-test of the Pusuca dataset revealed a statistically reliable difference between mean minga attendance for households whose primary residence was in Pusuca ($\bar{x}=10.14$, $s=1.03$) and households whose primary residence was outside Pusuca ($\bar{x}=8$, $s=2.8$), $[t(35) =3.52, p=.001]$.

I then recoded residential distance into three equal groups based on the natural log of residential distance for each site. The three categories were no distance (0), less than three (1), and three or greater (2). Analysis of variance found no significant difference in minga participation by ordinal category of residential distance from Manzano. Analysis of variance of the Pusuca dataset found a significant difference in mean participation for households whose primary residence was in Pusuca ($\bar{x}=10.14$, $s=1.03$) and households whose primary residence was outside Pusuca ($\bar{x}=8$, $s=2.8$), $[t(35) =3.52, p=.001]$. 

![Figure 7. Pusuca Mean Minga Participation by Percent Household Employed](image-url)
each of the three ordinal categories of residential distance per household \(F(2,37)=4.23, p=.022\). Looking at figure 8, we can see a clear pattern of minga participation decreasing in each of the two distances from Pusuca.

![Figure 8. Pusuca Minga Attendance by Ordinal Distance of Primary Residence](image)

The exploratory analyses of the relationship between mean minga participation, household wage employment, and residential distance justifies further correlation analysis of the relationships between these variables in Pusuca. Although exploratory analyses did not find any significant association between these variables for Manzano, it is worth conducting a correlation analyses to test for linear associations that might have been missed by t-tests and analysis of variance. I subsequently conducted a Pearson’s \(r\) correlation to test the strength of the linear association between continuous variables of wage employment, residential distance, and minga participation in both sites. In Manzano, there was no significant correlation between percent household wage employment and minga participation, but there was a significant negative correlation between residential distance and minga participation \((r=-.473, p<.000)\). In Pusuca, the results were a significant negative correlation with minga participation and percent of employed adults per household \((r=-.496, p<.001)\) and a negative correlation with minga
participation and residential distance \((r = -0.518, p = 0.001)\). I then conducted a multiple linear regression analysis to test the relative weights of association of wage employment and residential distance with minga participation in Pusuca, where both independent variables were found to be significantly associated. The results of the multiple linear regression found that the combined variables of percent household wage employment and residential distance accounted for 36 percent of the variation in minga attendance in Pusuca. Percent household wage employment \([b = -0.401, t(39) = -2.77, p = 0.009]\) was more reliable than residential distance \([b = -0.33, t(39) = -2.28, p = 0.028]\) in predicting household minga participation.

**Wage Labor, Residential Distance, and Perceived Reliability of Minga Participation**

The next step was to explore the association of wage labor and residential distance with an alternative indicator of minga participation. In the structured interviews, each respondent was asked to indicate if they or someone from their household participated in mingas “never/almost never,” “sometimes,” or “always/almost always.” For the purposes of analysis, these variables were recoded into “reliable attendance” (always/almost always) and “unreliable attendance” (never/almost never and sometimes).

I conducted a logistic regression analysis to predict respondent rankings of their own household minga participation using residential distance and household wage employment as predictors. Logistic regression is the appropriate procedure when testing the association between continuous independent variables (in this case, percent household wage employment and residential distance) and a binary dependent variable (in this case reliable or unreliable attendance) (Thompson 2006:393-394). A test of the full model against a constant only model was statistically significant in Manzano, indicating that the
predictors as a set reliably distinguished between self-reporting as reliable or non-reliable participants ($\chi^2=11.9$, $p=.003$, df=2). Nagelkerke’s $R^2$ of .273 indicated a weak relationship between prediction and grouping. Prediction success overall was 75 percent (79% for unreliable and 71% for reliable). The Wald criterion demonstrated that only residential distance made a significant contribution ($p=.006$) to predicting who perceived their household as a reliable or non-reliable participant. The EXP(B) value indicates that when residential distance is raised by one unit, the odds ratio is .45 times as large and therefore householders are .45 more times less likely to report being reliable participants. Interestingly, a test of the full model against a constant only model was not statistically significant in Pusuca, indicating that the predictors as a set did not reliably distinguish between self-reporting as reliable and non-reliable participants ($\chi^2=1.2$, $p=.557$, df=2).

**Respondent Explanations for Minga Absence**

The final step in analyzing hypothesis one was to explore respondent explanations for not participating in mingas. After reporting on their own household’s minga participation, interview respondents were asked to explain why they participated, as they said, “never/almost never,” “sometimes,” or “always/almost always.” These responses were inductively coded in MAXQDA based on observed patterns in the responses. Because respondents often cited more than one reason, I allowed for up to three codes for each response.

In all, respondents in both sites indicated a total of six different factors that, at least periodically, affected their ability to participate in mingas (see table 8 and figure 9). Seven people in Manzano and four people in Pusuca explained that they were at least occasionally unable to participate in mingas because their *wage employment*. In
Manzano, thirteen people claimed they did not participate in mingas because they were *not informed*. This theme only emerged in Manzano, where minga recruitment was informal and through direct dyadic exchanges, unlike Pusuca, where minga recruitment is a formal process. Four people in Manzano and three in Pusuca explained that they were often unable to attend mingas because of the distance between their primary residence and their respective communities (*residential distance*).

<table>
<thead>
<tr>
<th>Site</th>
<th>Participation Rank (n)</th>
<th>Code (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manzano</td>
<td>Never or hardly ever (11)</td>
<td>Employment (4); Not Informed (4); Age/Health (3); Residential Distance (2); Farm Work (1)</td>
</tr>
<tr>
<td></td>
<td>Sometimes (13)</td>
<td>Not Informed (8); Farm Work (3); Employment (2); Childcare (2); Not Included in Resource (1); Residential Distance (1)</td>
</tr>
<tr>
<td></td>
<td>Always or Almost Always (28)</td>
<td>Not Informed (1); Employment (1); Residential Distance (1)</td>
</tr>
<tr>
<td>Pusuca</td>
<td>Never or hardly ever (1)</td>
<td>Farm Work (1)</td>
</tr>
<tr>
<td></td>
<td>Sometimes (8)</td>
<td>Age/Health (2); Employment (2); Childcare (2); Residential Distance (2)</td>
</tr>
<tr>
<td></td>
<td>Always or Almost Always (31)</td>
<td>Employment (2); Residential Distance (1)</td>
</tr>
</tbody>
</table>

Some of the less common explanations in the two sites were age or health-related issues, the time demands of farm work, and childcare issues. Three respondents in Manzano and two in Pusuca cited *age and health-related* reasons for not being able to participate in mingas. Some said they weren’t able to work at all because of advanced age or health reasons, while others said that only prevented them from minga work on occasion. In Pusuca, where *tareas* could often be quite arduous, the two respondents who cited age and health reasons for not attending said it was only on those days when the
tareas were most grueling, such as ditch digging and carrying heavy materials. On these
days, they said, they would send kin or peons in their stead. *Farm work* was mentioned
four times in Manzano and once in Pusuca, where respondents indicated that they were
unable to participate in mingas due to the labor demands on their own land, which could
be with either their crops or their animals. Finally, two female respondents in each
community stated that *childcare* responsibilities prevented them from participating in
mingas at times.

Figure 9. Frequency of Respondent Reasons for Minga Absence by Site

*Gender in Hypothesis One*

Several analyses were conducted to test the influence of gender on the variation of
the variables in hypothesis one. Analyses tested the association between gender and wage
employment at the individual level and several household-level variables, including
residential distance, percent wage employment, and minga participation based on whether
or not households were headed by males or females. Although there was a greater
number of employed men (n=15) than women (n=10) in Manzano, a chi-square test of the
goodness-of-fit of the model that expects men to have significantly greater wage
employment was not significant \[X^2(1, n=140) =0.51, p=.514\]. In Pusuca, there was a greater difference between the number of employed men (n=17) than women (n=6), which was a significant in a chi-square goodness-of-fit test \[X^2(1, n=73) =7.25, p=.007\].

Subsequent analyses tested the association of wage employment, residential distance, and minga participation based upon two independent variables: a) gender of primary respondent in semi-structured interview; b) gender of head of household. In order to test the association of these variables, I conducted both parametric (t-test) and non-parametric (Kruskall Wallis) tests of association. There was no significant difference in wage employment, residential distance, or minga participation by gender of respondent or head-of-household in either site.

**Summary of Findings for Hypothesis One**

As anticipated by the hypothesis, wage employment and residential distance were negatively associated with *records* of minga participation in Pusuca. In Manzano, however, wage employment was not significantly associated with records of minga participation, but there was a significant negative correlation between residential distance and minga participation. Interestingly, when testing the association of residential distance and household wage employment with *self-reported* minga participation, we find that household employment and residential distance are significantly negatively associated with respondent perceptions of their own minga attendance in Manzano, but not in Pusuca. The explanation (as will be discussed more fully in the next chapter) for the difference between the model relationships in the two sites perhaps lies in the reasons provided by the informants themselves. Not being informed of mingas was cited by thirteen respondents as their primary reason for not participating in mingas in Manzano,
which is consistent with ethnographic observations discussed in the following chapter. Interestingly, though they did not emerge as significant variables in statistical tests of records of minga participation in Manzano, wage employment is the second most commonly reported reason for not participating and residential distance is reported by another four respondents, suggesting that these are indeed factors that affect minga participation. In Pusuca, the primary reasons provided by respondents for not participating in mingas were wage employment and residential distance. Finally, although males exhibited a significantly higher rate of wage employment than females in Pusuca, there was no significant statistical difference between male and female rates of wage employment in Manzano. Furthermore, gender of respondent and head-of-household was not significantly associated with residential distance, percent of household wage employment, or minga participation in either site.

**Hypothesis 2**

Hypothesis 2 tests the assumption that mingas are forms of reciprocity (exchange labor) in which laborers are continuously recruited by leaders through conspicuous giving. This hypothesis will be tested by examining the extent to which household participation in mingas is positively associated with the degree of household exchange relations with group overall (H2).

In designing this study, I expected exchange categories to be independent, which would enable me to measure differences in the flows of materials and services. However, I found that, with very few exceptions, exchange categories were strongly correlated, which prevents me from using multiple exchange variables as independent variables in analysis (see Appendix B for a correlation matrix). As a result, I only employ measures
of total exchanges (i.e., all material and services given and received) and cannot statistically evaluate the extent to which receiving material items through exchange contributes to minga participation any more or less than giving or receiving other forms of exchange. I do, however, examine the relationship between minga participation and exchange participation overall.

The measure I employ of exchange participation is the total number of exchanges—given and received, service and material—confirmed by both parties to the exchange. That is, when only one household claims they gave an item to another household, it is only included if the other household reported receiving that item. This approach was chosen as a means to control for informant accuracy, which can often be problematic with social network methods (Bernard et al. 1984). By relying on only those exchanges confirmed by both parties, I can be more confident in the reliability of the data, although this does slightly reduce the total number of exchanges in the model because non-confirmed exchanges are eliminated.

**Exploratory Analysis of Variables**

In order to first explore the relationship between minga participation and exchange participation, I conducted an analysis of variance of minga participation by percentile group of total exchange participation. The results were significant for Manzano \([F(4,47)=7.3, p<.001]\) (see figure 10), but not for Pusuca \([F(4,35)=.283, p=.887]\).

The next step was to conduct a Pearson \(r\) correlation to test the relationship between minga participation and total exchange participation. The results were significant for Manzano \((r=.478, p<.0001)\), but not for Pusuca \((r=.173, p=.284)\). Following this, I conducted a linear regression for Manzano and found that total
household exchange participation \( [b = .478, t(51) = 3.85, p < .001] \) was a reliable predictor of household minga participation and accounted for 21 percent of variation in minga attendance. Linear regression was not conducted for Pusuca because there was no linear correlation between minga participation and exchange participation.

![Figure 10. Manzano Minga Participation by Percentile Group of Total Exchange](image)

**Exchange Participation and Perceived Reliability of Minga Participation**

The next step was to explore the association of exchange participation with the same alternative indicator of minga participation employed in hypothesis 1, using respondent-provided indicators of whether or not they reliably (always/almost always) or unreliably (never/almost never and sometimes). I then conducted a logistic regression analysis to predict respondent rankings of their own household minga participation using total exchange participation as a predictor.

A test of the full model against a constant only model was only statistically significant in Manzano. Results indicated that the predictors as a set reliably distinguished between self-reporting as reliable or non-reliable participants \( (\chi^2 = 11.13, p = .001, df = 1) \). Nagelkerke’s \( R^2 \) of .257 indicated a weak relationship between prediction
and grouping. Prediction success overall was 63.5 percent (58% for unreliable and 68% for reliable). The EXP(B) value indicates that each additional exchange a household participates in increases the likelihood that they self-report regularly attending mingas by one.

**Respondent Explanations for Minga Participation**

The final step in analyzing hypothesis two was to explore respondent explanations for their minga participation. After reporting on their household’s minga participation, interview respondents were asked to explain why they participated, as they said, “never/almost never,” “sometimes,” or “always/almost always.” These responses were inductively coded in MAXQDA based on observed patterns in the responses. Because respondents often cited more than one reason, I allowed for up to three codes for each response.

**Table 9. Reasons for Minga Participation by Self-Reported Participation Rank**

<table>
<thead>
<tr>
<th>Site</th>
<th>Participation Rank (n)</th>
<th>Code (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manzano</td>
<td>Never or hardly ever (11)</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td>Sometimes (13)</td>
<td>Obligation (1)</td>
</tr>
<tr>
<td></td>
<td>Always or Almost Always (28)</td>
<td>Obligation (12); Communal Resource (11); Like to Participate (3); Penalty (3); Community Solidarity (2); Direct Benefit to HH (1)</td>
</tr>
<tr>
<td>Pusuca</td>
<td>Never or hardly ever (1)</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td>Sometimes (8)</td>
<td>Obligation (1); Penalty (1); Communal Resource (1)</td>
</tr>
<tr>
<td></td>
<td>Always or Almost Always (31)</td>
<td>Obligation (17); Communal Resource (8); Direct Benefit to Household (7); Penalty (4); Like to Participate (2); Community Solidarity (1)</td>
</tr>
</tbody>
</table>

In all, respondents in both sites indicated a total of six different factors that, at least periodically, motivated their participation in mingas (see table 9 and figure 11). The
most common explanations were obligation, shared interest in a communal resource, direct benefit to households, and penalties for non-participation. Responses coded as obligation (Manzano, n=14; Pusuca, n=18) are instances where people say that minga work is the responsibility of every member of the community, often for the good of the community as a whole. It is possible that these statements are made in a somewhat different spirit in Manzano and Pusuca because the “obligation” to participate in Manzano, while often stated, is loosely monitored and informally enforced, whereas the “obligation” in Pusuca is strictly monitored and formally enforced. However, the “obligation” code does not cover enforcement of participation. Responses coded as penalty (Manzano, n=3; Pusuca, n=5) are specific instances where people make reference to having to pay multas, or fines levied on households for failure to participate in mingas. Although Manzano respondents refer to multas on three occasions, they were likely referring to irrigation canal mingas organized at the Parish level because there is no multa system in the communal mingas in Manzano, as there is with the irrigation mingas organized by the Puela Parish Irrigation Committee.

Eleven respondents in Manzano and nine in Pusuca cited shared interest in a communal resource, such as irrigation, roads, and potable water—that accrue as a result of minga labor. Typical statements include “it’s for the good of everyone” and “For the betterment of the land because water is the soul of life and the earth so that our fields will be productive.” Following this, one response in Manzano and seven in Pusuca were coded as direct benefit to household, which refers to instances when respondents point out that, in addition to collective benefits, their households directly benefit from minga projects as well. One man from Pusuca said, “[I work in mingas] for potable water, to
have my home, to obtain the irrigation canal, in order to have rights.” Interestingly, while this came up seven times in Pusuca, it was only mentioned once in Manzano (see table 9).

Figure 11. Frequency of Respondent Reasons for Minga Participation by Site

There were three instances in Manzano and two in Pusuca where respondents like to participate, saying simply that they participate in mingas because “me gusta trabajar” (“I like to work”). Finally, there were two instances in Manzano and one in Pusuca where respondents cited community solidarity as their reason for participation, stating that they worked in mingas to be a part of the community. These statements were “to collaborate with the community,” “because we are related,” and “we like to collaborate and we like to be united with the community.” Outside of the interview context, this was perhaps the most cited reason for minga participation in everyday conversation and political contexts, especially in Manzano.

Gender in Hypothesis Two

Statistical tests performed to evaluate the role of gender in minga participation in hypothesis one established that there was no significant association between the gender of respondents or head-of-household with minga participation. For hypothesis two, I tested
the association of respondent and head-of-household gender on overall exchange participation using both parametric (t-test) and non-parametric (Kruskall Wallis) procedures. There was no significant association between respondent or head-of-household gender on total exchange participation in either site.

*Summary of Results for Hypothesis Two*

Several tests of the association between total household exchange participation and household minga attendance have found that the two are positively associated in Manzano, as expected in the hypothesis. There was, however, no statistical association between these variables in Pusuca. As with hypothesis one, the open-ended rationales provided by respondents provide some context to these findings. While only a quarter of Manzano respondents cited *obligation* as a reason for participating, this was cited by more than 50 percent of Pusuca residents. Statistical tests of the association between respondent and head-of-household gender in total exchange participation found no significant relationship between these variables in either site. The implications of these qualitative responses for the interpretation of the findings will be discussed in the following chapter.

**Hypothesis 3**

The final analysis is to examine the hypothesis that political power is based on access and control over scarce development resources and it is maintained and exercised through exchange networks and unique ties to sources of aid and development resources (H3). Specifically, I evaluate the extent to which: (H3a) Influence over collective negotiations and benefit allocation will be positively associated with the extent of a household’s total exchange relations with other households in the community, and; (H3b)
More powerful actors and their allies will have a greater share of development benefits than others.

For this analysis, total exchange is measured as it was for hypothesis two—the total of items and services given and received by each household and confirmed by each exchange partner. Influence over collective negotiations and benefit allocation is measured using two variables. The first is brokerage, which is the number of times each household was named as a source of information regarding opportunities with outside organizations. The second is a scale of household influence based on participation observation in decision-making contexts in both sites. In the second analysis, I employ eigenvector centrality (Bonacich 2007) to identify more powerful actors and their allies. Unlike the total exchange measure employed above, which measures a household’s direct connections, eigenvector centrality measures the total exchange connections of a household’s direct connections; that is, it measures how connected a household is to highly connected households. Benefit share is measured based on interview responses indicating whether each household was or was not included in a given aid or development project in their village, which is combined into a scale of all benefit inclusion.

Brokerage Power and Exchange

To measure the relationship between brokerage and exchange, I conducted an analysis of variance by quartile of household brokerage score and total strong exchange, which was not significant in Manzano \( F(3,48)=2.5, p=.075 \), though it was in Pusuca \( F(3,36)=4.5, p=.009 \). However, by looking at the graph of mean exchange participation by percentile group of brokerage score (figure 12), we can see that there is a linear relationship in Manzano, but in Pusuca we can see that the linear pattern tapers off in the
highest category. Although the relationship is not significant at a 95 percent confidence level in Manzano, it is significant at a 90 percent confidence level and the graphs suggest a linear relationship worth exploring through further analysis.

![Figure 12. Mean Exchange Participation and Brokerage Score by Site](image)

A Pearson $r$ correlation of exchange participation with brokerage scores was significant in both Manzano ($r = 0.302, p=0.029$) and Pusuca ($r = 0.48, p=0.002$).

Regression analysis confirmed that total household exchange was a reliable predictor of brokerage score in both Manzano [$b = .302, t(51) = 1.52, p= .029$] and Pusuca [$b = .484, t(39) = 1.34, p= .002$].

Influence and Exchange

To understand the distribution of development benefits, respondents in each community were asked if they were included in four different relief and development projects. The first three projects were the same in each site and each site had one project that was specific to only that site. The first was food rations that were distributed to disaster-affected households in the region by the Ministry of Economic and Social Inclusion (MIES). The second was animal feed distributed by the Ministry of Agriculture,
Farming, and Fisheries (MAGAP) to disaster-affected households in the region. The third was agricultural extension programs conducted by any of a number of organizations, including MAGAP and several other institutions. In Manzano, residents were asked if they had received service from a tractor that was purchased by the Junta Parroquial and whose service was subsidized by the Junta, meaning service cost about half of what a private tractor would cost. In Pusuca, residents were asked if they had been included in either of two greenhouse projects facilitated by Esquel and funded by smaller foundations. Inclusion in all of these programs was brokered by the Cabildo in Manzano or the Directiva in Pusuca, both of which organized the programs and invited the participants.

For this analysis, I relied on influence scores based on observations of cabildo and directiva meetings in both sites. Each household was given a score in each of three categories (attendance, participation, and changing decisions) of influence over decision-making (ranked 0, 1, or 2 for never/almost never, sometimes, or regularly). The combined score ranged from 0-6 and was recoded into a binary variable indicating whether respondents were consistently (4-6) or inconsistently (0-3) influential in community affairs. An independent t-test of the Manzano dataset revealed a statistically reliable difference between mean total exchanges for households with inconsistent influence ($\bar{x}=18$, $s=19$) and households with consistent influence ($\bar{x}=32$, $s=17$), $[t(50) = 2.1, p=.038]$. An independent t-test of the Pusuca dataset likewise revealed a statistically reliable difference between mean total exchanges for households with inconsistent influence ($\bar{x}=29$, $s=21.5$) and households with consistent influence ($\bar{x}=52$, $s=21$), $[t(38) = 3, p=.005]$. 
Because the range of total household exchange and influence scores were so distinct from one another, non-parametric correlations were the more appropriate measure to further test the relationship between these two variables. Spearman’s rho treats dependents as ordinal, rather than scale measures and thus more accurately measures the relationship between total exchange and influence. The results were significant in both Manzano ($r=0.43$, $p<0.05$) and Pusuca ($r=0.52$, $p\leq0.001$).

**Gender, Brokerage, and Influence**

In order to test for the association of gender with the key dependent variables in hypothesis 3a, I conducted both parametric (t-test) and non-parametric (Kruskal Wallis) tests of association. I found no significant difference between the brokerage or influence scores based on the gender of respondent or head-of-household in either site. A subsequent test of chi-square goodness-of-fit between gender of respondent or head-of-household and a binary influence score (low-0-3; high 4-6) similarly found no significant association in either site.

**H3b Benefit Inclusion**

An analysis of variance of mean eigenvector centrality and household benefit inclusion was significant in both Manzano [$F(4,47)=3.5$, $p=.013$] and Pusuca [$F(4,35)=7.8$, $p<.001$] (see figure 13). As with household influence scores, non-parametric correlations are more appropriate than parametric correlations when the independent and dependent variables differ so greatly in scale. A Spearman’s rho analysis found a significant correlation between household eigenvector centrality and household benefit inclusion in both Manzano ($r=0.384$, $p=0.005$) and Pusuca ($r=0.658$, $p<0.001$).
In order to evaluate the extent to which eigenvector centrality (degree of ties to highly connected households) indicates that there are less connected households gaining access to relief and development resources through ties to highly connected households, I conducted a Pearson’s r correlation between eigenvector centrality and total exchange participation (i.e., total direct ties to the group). The results were high and significant correlations for both Manzano ($r=0.86$, $p=0.000$) and Pusuca ($r=0.91$, $p=0.000$). I then conducted a Spearman’s rho analysis between total direct ties to the group and benefit inclusion in both sites. The result was no significant correlation between direct exchange ties to the group in Manzano ($r=.253$, $p=.071$), but a significant correlation between direct exchange ties and benefit inclusion in Pusuca ($r=.571$, $p=.000$).

Taken together with the results of the tests of eigenvector centrality and benefit inclusion in Manzano, this suggests that having ties to highly connected individuals (eigenvector centrality) yields greater access to aid and development resources than does having many direct ties yourself. Put another way, it is not enough to be highly connected to access aid and development resources, one must be connected to highly connected

![Figure 13. Mean Eigenvector Centrality by Benefit Inclusion by Site](image-url)
households. In Pusuca, the results suggest that households that have greater direct
correlations to the group are significantly more associated with access to aid and
development resources, but there is a higher correlation with being connected to highly
connected households (eigenvector centrality). Since both factors—direct connections
and connections to highly connected households—are significant in Pusuca, this would
suggest that highly connected households tend to connect to other highly connected
households and these are the households that more reliably access program benefits. This
is to say that benefits tend to be distributed within the highly connected core group in
Pusuca, while they are somewhat more dispersed through ties to less connected
households in Manzano.

Respondent Explanations for Non-Inclusion in Relief and Development Programs

The final step in analyzing hypothesis three was to explore respondent
explanations for not being included in relief and development programs. After reporting
on their household’s inclusion in each program, respondents were asked to explain why
they were or were not included in each. These responses were inductively coded in
MAXQDA based on observed patterns in the responses. Because respondents often cited
more than one reason, I allowed for up to three codes for each response, as with the same
analyses for hypothesis 1, although most respondents to this question gave no more than
two reasons. Because it is important to qualify why respondents were not included, I
focus on those responses here.

In all, respondents indicated a total of fourteen reasons for not being included in
the four different relief and development programs in their respective sites (see table 10).
For the food rations from the Ministry of Economic and Social Inclusion (MIES),

...
respondents indicated a total of seven reasons for non-inclusion. The code “absent” refers to instances where the respondents claim they simply were not present for the program. The code “No Information” applies to instances where respondents indicated that they were not informed of the program. “No Interest” was applied to responses where respondents stated that they were not interested in the program. I applied the code “Exclusion” to cases where respondents claimed that they were deliberately excluded from the program. There were also cases coded as “Not Eligible,” where the respondents indicated that they had no right to program benefits because of age or legal status. In cases where the respondents indicated that they were not eligible because they did not live full-time at the location, I applied the code “Residency.” And finally, where respondents stated that they were not present because of wage work obligations, I applied the code “wage work.”

Figure 14. Reasons for Non-Inclusion in MIES Food Rations by Site
Table 10. Reasons for Non-Inclusion in Relief or Development Programs by Site

<table>
<thead>
<tr>
<th>Site</th>
<th>Relief or Development Program</th>
<th>Code (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Manzano</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Food Rations from Ministry of Social and Economic Inclusion (MIES)</td>
<td>Absent (2); No Information (3); No Interest (5); Exclusion (5); Residency (1)</td>
</tr>
<tr>
<td></td>
<td>Animal Feed from Ministry of Agriculture, Farming, &amp; Fisheries (MAGAP)</td>
<td>Absent (1); No Animals (11); No Information (1); Exclusion (1); Residency (1)</td>
</tr>
<tr>
<td></td>
<td>Tractor from Junta Parroquial</td>
<td>Occupied (15); No Need (15); Refused (1); No Information (1); Absent (2)</td>
</tr>
<tr>
<td></td>
<td>Extension (various agencies)</td>
<td>Work/No Time/Absent (11); Exclusion (3); No Information (15); No Interest (1); No Interest (1); Residency (1)</td>
</tr>
<tr>
<td></td>
<td><strong>Pusuca</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Food Rations from Ministry of Social and Economic Inclusion (MIES)</td>
<td>Absent (3); No Information (5); No Interest (1); Exclusion (4); Not Eligible (3); Residency (3); Wage Work (1)</td>
</tr>
<tr>
<td></td>
<td>Animal Feed from Ministry of Agriculture, Farming, and Fisheries (MAGAP)</td>
<td>Absent (1); No Animals (13); No Information (1); No Need (1); Exclusion (1)</td>
</tr>
<tr>
<td></td>
<td>Greenhouse (various agencies via Esquel)</td>
<td>Absent (2); Exclusion (10); No Interest (10); No Funds (2); Health/Age (1); Problems (5); Residency (4)</td>
</tr>
<tr>
<td></td>
<td>Extension (various agencies via Esquel)</td>
<td>Work/No Time/Absent (7); Exclusion (1); No Information (5); Residency (4)</td>
</tr>
</tbody>
</table>

In Manzano, the most common reasons for non-inclusion in MIES food rations were “exclusion” (31%, n=5) and “no interest” (31%, n=5). This was followed by “no information” (19%, n=3), “absent” (12%, n=2), and “residency” (6%, n=2) (see figure 14). In Pusuca, a majority claimed they had no information about the MIES program (29%, n=5), while the second largest group cited “exclusion” (29%, n=5) as their reason for not being included (see figure 14). This was followed by “residency” (18%, n=3),
“not eligible” (18%, n=3), “absent” (18%, n=3), “wage work” (6%, n=1), and “no interest” (6%, n=1).

When asked to provide explanations for non-inclusion in the Ministry of Agriculture, Farming, and Fisheries (MAGAP) animal feed program, respondents gave explanations consistent with many of the codes applied to the MIES food rations program, plus two more. These were “no animals,” where respondents said they had no animals and therefore no need for the program, and “no need,” which was applied where respondents had animals, but indicated that they received the benefit from another source.

![Figure 15. Reasons for Non-Inclusion in MAGAP Animal Feed Program by Site](image)

Figure 15. Reasons for Non-Inclusion in MAGAP Animal Feed Program by Site

In Manzano, the primary reason for non-inclusion in the MAGAP animal feed distribution program was simply that respondents did not have animals at the time (73%, n=11), which was followed by the “residency,” “exclusion,” “no information,” and “absent,” which were cited by just one resident each (see figure 15). In Pusuca, the pattern was nearly identical to Manzano, as can be seen in figure 15. The number one reason for non-inclusion in the MAGAP animal feed program was not having animals (76%, n=13). This was followed by “exclusion,” “no need,” “no information,” and “absent,” each of which were cited by just one respondent each.
When asked about the agricultural extension programs in their respective sites, respondents provided reasons that were consistent with the codes provided for the other programs, with the added category of “work/no time/absent.” This refers to cases where respondents were absent due to a lack of time or work commitments, though not necessarily wage work commitments. In Manzano, the number one reason for non-inclusion in agricultural extension programs was “no information” (50%, n=15) (see figure 16). This is followed by “work/no time/absent” (33%, n=11) and “exclusion” (10%, n=3), and then “residency” and “no interest,” which were cited as reasons by one household each. In Pusuca, the pattern of reasons provided for non-inclusion in agricultural extension is similar to Manzano (see figure 16). The top three reasons provided were “work/no time/absent” (41%, n=7), “no information” (29%, n=5), and “residency” (23%, n=4). “Exclusion” was cited by just one respondent in Pusuca.

Manzano residents who indicated that they were not included in the subsidized tractor program of the Junta Parroquial of Puela provided several reasons for non-inclusion that were consistent with codes applied to the other programs. There were also two new codes applied to explanations of non-inclusion in this program. They were
“occupied,” which refers to cases where respondents claimed that the tractor was constantly occupied on other peoples’ lands and never available for theirs, and “refused,” where the respondent indicated that they were denied service due to their uneven land (see figure 17).

**Figure 17. Manzano Reasons for Non-Inclusion in Parroquia Tractor Program**

In Pusuca, respondents were asked to provide reasons why they were not included in one of several greenhouse projects. In addition to the response codes applied to non-inclusion responses for other programs, respondents to questions about non-inclusion in the greenhouse projects provided explanations that called for the application of three additional codes. The first was “no funds,” which was applied where respondents indicated that they did not have the funds necessary to buy into the projects. The second was “problems,” which was applied when the respondent indicated that they declined to participate due to persistent problems between project beneficiaries. The third was “health/age,” where respondents indicated that they were unable to participate in the project due to poor health or advanced age.
The primary reasons provided for non-inclusion were “no interest” (29%, n=10) and “exclusion” (29%, n=10) (see figure 18). The next two most popular explanations were “problems” (15%, n=5) and residency (12%, n=4). This was followed by “no funds” and “absent,” which we cited by two respondents each, and “health/age,” which was cited by just one respondent.

![Figure 18. Pusuca Reasons for Non-Inclusion in Greenhouse Projects](image)

**Gender and Benefit Inclusion**

In order to test the relationship between gender and benefit inclusion, I conducted both parametric (t-test) and non-parametric (Kruskal Wallis) tests of the association between respondent and head-of-household gender and program inclusion. These tests found no significant association between gender and benefit inclusion in either site.

**Summary of Findings for Hypothesis Three**

Statistical tests found that there was a significant positive relationship between exchange participation and brokerage and decision-making power in both sites, as anticipated by hypothesis 3a. This suggests one of the ways in which politically powerful individuals maintain and exercise their power is through exchange relationships. Those
with more exchange ties are more likely to be turned to for access to scarce development resources and to have their views and agendas supported. This finding is supported by ethnographic observations that will be discussed in the following chapter.

Statistical tests also found a significant positive association between the extent of exchange relations with powerful households and inclusion in disaster relief and development projects in both sites, as expected in hypothesis 3b. The conclusion is that it is not only the powerful who benefit from unique ties to outside resources, but also their less powerful allies within their communities. High degrees of direct ties were not significantly correlated with benefit inclusion in Manzano, though they were in Pusuca, although slightly less strongly than ties to highly connected households. Both of these findings support the initial hypothesis, while in Pusuca there is some evidence that benefits are concentrated in the highly connected core of the group. Statistical tests were also conducted to examine the association between gender of respondents and heads-of-household and brokerage score, influence score, and benefit inclusion. Results found no significant association between gender and these dependent variables in either site.

Examining respondents’ stated reasons for non-inclusion in the four different programs they were asked about provided a more complete picture than statistical tests alone. It is evident that there were a significant number of cases where there were practical and self-imposed reasons for non-inclusion (e.g., lack of need or interest). However, outright exclusion and other soft forms of exclusion (e.g., not being informed) were cited by many respondents for non-inclusion in each of the programs in both sites. This too will be discussed further in the following chapter.
Summary of Findings

The expectation of hypothesis 1 was that wage employment and residential distance would be negatively associated with minga participation. The results were mixed between the two sites. In Manzano, wage employment was not significantly associated with records of minga participation, but there was a significant negative correlation with residential distance and minga participation. In Pusuca, there were significant negative correlations with wage employment and residential distance with records of minga participation. When testing the association between residential distance and wage labor with self-reported minga participation, we find significant negative correlations with wage labor and residential distance in Manzano, but not in Pusuca. When asked to indicate why they did not participate in mingas, a majority of respondents from Manzano cited not being informed of mingas as their primary reason for non-participation, wage employment was the second most commonly reported, and another four respondents cited residential distance. In contrast, Pusuca respondents indicated wage employment and residential distance as their two primary reasons for not attending mingas.

The expectation of hypothesis 2 was that household exchange participation would be positively associated with minga participation. Multiple tests of the association between household minga attendance and total household exchange participation found positive associations between these two variables in Manzano, but not in Pusuca. As with hypothesis 1, qualitative explanations from respondents provide some context to these findings. In Pusuca, more than 50 percent of respondents cited obligation as their reason for participating in mingas, whereas in Manzano only a quarter of respondents cited this rationale.
For hypothesis 3a, the expectation was that total household exchange participation would be positively associated with brokerage and decision-making power and statistical tests found a significant positive correlation between these variables in both sites. The implication is that one way that politically powerful individuals exercise and maintain their power is through forming reciprocal exchange ties. Those with more ties are more likely to act as brokers between their neighbors and scarce aid and development resources and more likely to have their views and agendas supported in local decision-making processes.

Hypothesis 3b was designed to test the assumption that households connected through reciprocal exchange relations to highly connected households access a greater share of relief and development resources than others. Statistical tests indicated a significant positive association between being connected to highly connected households and project benefit inclusion in both sites. This suggests that it is not only the powerful that access these scarce extra-local resources, but also their less connected allies, which can be taken as evidence of privileged inclusion as a form of power in both sites. A further test of the correlation between being a highly connected households and being connected to highly connected households found that these two variables were highly correlated in both sites. However, in Manzano there was no significant correlation between the degree of direct household ties and benefit inclusion, whereas this correlation was significant in Pusuca, though slightly weaker than the correlation between benefit inclusion and ties to highly connected households. These findings support the assumptions of the hypothesis, while suggesting there is a greater concentration of benefit distribution within the highly connect core of the group. As with the first two hypotheses,
self-reported explanations for non-inclusion provide some context here as well. There was a considerable number of cases where there were practical or self-imposed reasons for non-inclusion in the programs named in the survey (e.g., no need or interest), outright exclusion and soft forms of exclusion (e.g., not being informed) were cited by many respondents in both sites as well.

Some of the results of this study were anticipated by the hypotheses, while others were not. Some of the findings that were not anticipated by the hypotheses were nonetheless consistent with ethnographic observations that provide necessary explanatory context to each finding. All of these findings will be discussed further in the following chapter.
CHAPTER SIX: DISCUSSION

This chapter is a discussion of the findings presented in the previous chapter. Some hypothesis tests were significant in one site and not the other, while others were significant, but not for the reasons anticipated and therefore want for explanation. These explanations oblige me to examine some of the key differences between the two sites and at times point to interpretations that are contrary to expectations. However, before doing so it is important to point out that the sample of sites (n=2) by no means justifies any generalization of these findings based on the site characteristics described, but nonetheless does point to opportunities for further research to be discussed in the conclusion chapter. At appropriate points in the discussion, I draw on literature—some anticipated in the literature review chapter, some not—in order to interpret study findings and place them in the context of relevant studies and theory.

**Hypothesis 1: Minga participation will be negatively associated with wage employment and residential distance**

As anticipated in hypothesis 1, wage employment and residential distance were negatively associated with *recorded* minga participation in Pusuca. In Manzano, however, there was no significant association between wage employment and minga participation and there was a slight negative correlation between residential distance and minga participation. However, this inter-site pattern was reversed when wage employment and residential distance were tested for associations with *self-reported* minga attendance. In these latter tests, wage labor and residential distance were
negatively associated with *self-reported* minga participation in Manzano, but not in Pusuca. When asked to provide reasons for not participating in mingas, a majority of respondents from Manzano cited not being informed of mingas as their primary reason for non-participation. Wage employment was the second most commonly reported, and another four respondents cited residential distance as an explanation for missing mingas. In Pusuca, however, wage employment and residential distance were the two primary reasons provided by respondents for not attending mingas, which was consistent with statistical tests of *recorded* minga participation. Taken together, these findings suggest that wage employment and residential distance are more reliable negative predictors of minga participation in Pusuca than in Manzano; however, wage employment and residential distance do negatively affect *self-reported* minga participation in Manzano, suggesting that these variables contribute to some variation in participation, while other factors not included in the hypothesis likely account for more.

In order to interpret these findings, it is important to briefly revisit the origins of the hypothesis, which is based on the assumption that residential distance between community members and household participation in wage labor constitute risks to minga practice. The first risk was identified by Cernea (1996a), who found evidence that resettlement schemes destabilize social support networks by breaking up social groups into different resettlements. The second risk factor that might affect the continuity of reciprocity and cooperation in rural resettlements is a transition in the mode of production from primary production to wage labor. This justified the hypothesis that distance of primary residence from either Manzano or Pusuca and participation in wage labor would be negatively associated with minga participation in either site. While study results found
that these factors were negatively associated with recorded minga participation in Pusuca, there was no statistical association in Manzano, although qualitative responses do indicate that wage labor and residential distance do factor into minga participation. These results are potentially explained by some of the unique features of the organization of the two sites.

*Minga Participation in Manzano*

Looking first at Manzano, there are two broad themes that emerged from interviews and ethnographic observation that might help explain variation in minga participation, where residential distance and wage employment cannot. The first is simply lack of interest in participating by some households; specifically, there were four households that had never lived full-time in Manzano. These were wealthier landowners who had purchased land in Manzano in the late 1980s and early 1990s, but had always resided in the nearby city of Riobamba. Household members would tend to their land on weekends and employ peons for labor intensive work, such as planting and harvesting. They never participated in mingas and likely had little interest in doing so, as their land and production were self-sustained and they had little to gain from participation. Still, their residential distance from Manzano and wage employment in all of these households, regardless of whether or not it was the result of the eruptions, would nevertheless be consistent with the model, so this does not explain the failure of the model to accurately predict outcomes in this site.

The second, more likely explanation for variation in minga participation in Manzano—given that the hypothetical explanations of residential distance and wage labor failed—is that, although Manzano had the reputation of being the most organized
village in Canton Penipe, this organization did not include the whole roster of pre-eruption households. This became evident in the course of fieldwork in 2009 and 2011. In 2009, Bernardo Huerta, who became president of Manzano’s cabildo just after the first eruptions in 2000 and remained president in 2011, began organizing mingas in earnest. According to Marcos, the head of the Penipe Municipal Development Office, Bernardo had observed that the leaders of Palictahua, another displaced village in the neighboring high risk parish of El Altar, had successfully attracted aid and development resources by demonstrating through community organizing for mingas. Bernardo began to emulate this strategy in Manzano and they gradually became recognized as the most organized village in Puela Parish. Bernardo says that before the eruptions, minga practice had declined in Manzano and Puela, but was revived afterwards at the encouragement of aid and development agencies and under the guidance of local leaders who wanted to organize the revival of their villages. Thus, in 2009, Bernardo began organizing mingas to repair the casa comunal, the central meeting place for Manzano. This was followed by projects to clear roads of volcanic debris, repairing the roofs and structures of other community buildings, and building a volleyball court in front of the casa comunal.

Bernardo and the village of Manzano continued to organize mingas in 2011, during the time of fieldwork for this project, although less frequently than in 2009 and with participation reduced by roughly 25 percent. This decline in participation can be largely attributed to different forms of exclusion practiced in Manzano, which can be roughly grouped into two domains. The first is a soft form of exclusion, characterized by a neglect to inform all community members of mingas (and other events as well). Not being informed of mingas was the number one reason (nearly 25%) provided by
respondents for non-participation and I observed this dynamic on a number of occasions. On one occasion, I sat with Bernardo and other Manzano villagers discussing village affairs. While we were discussing attendance at community mingas, a young man who was sitting nearby listening to our conversation, said that he would like to work on the community mingas, but no one ever lets him know when they are. He tells Bernardo that he should let him know when they are organizing mingas, but Bernardo did not respond. On several occasions, I rode with Bernardo in his pickup truck through the resettlement as he visited resettlers from Manzano to invite them to mingas or to meetings with a development organization. As we drove past certain homes I knew to be from Manzano without stopping, I would ask Bernardo why we did not stop to invite these people and he told me that some people just could not be counted on to participate.

Pedro Cordova, an elderly man whose household is one of the wealthier ones in Manzano, offered an explanation for the gradual exclusion of some people from mingas and community affairs in Manzano, expounding a common topic of conversation in the Penipe resettlements. He told me that people used to participate more in mingas and community affairs, but after the eruptions people no longer wanted to work for benefits. Instead, they had grown accustomed to receiving handouts from the state and NGOs in the Penipe resettlements and no longer wanted to work for the common good without personal incentives. What was evident from these and other observations and discussions with key informants was that the community of Manzano had grown more disparate in many ways since the resettlement, which presented definite challenges for those, like Bernardo and other community leaders, who wanted to revive and organize the traditional communities. Bernardo and other leaders in Manzano had simply stopped trying with
some people, many of whom had found new opportunities, responsibilities, or concerns in the resettlements and could not or would not commit their time and energy to community affairs in Manzano.

It is important to also recognize more explicit forms of exclusion at work in Manzano, which likely contribute to variation in minga participation; that is, certain social and political divisions emerged or were exacerbated in Manzano since the eruptions and these have taken the form of more overt exclusion over time. Although Bernardo had explained to me that he did not recruit certain households in the resettlement for minga participation because they could not be counted upon to participate, there were other occasions where he told me he was not inviting someone because “no, she’s never on my side. I can’t have her in the project.” One woman he had excluded was effectively ostracized by Bernardo after she ran and lost for parish office on a ticket opposing candidates backed by Bernardo in 2009. More than a dozen residents from Manzano offered anecdotes of exclusion and corrupt practices by Bernardo and other village leaders.

When I first entered the field in 2009, Blanca was an active member of the Manzano community, although she had resettled to Pusuca. She explained that she stopped participating in mingas in Manzano because she and many others were no longer invited. When I asked her why, she claimed that it was because Manzano leaders keep their groups small so they can hoard more benefits for themselves. Alberto Martinez recounted a similar story, saying that the leaders and the small group around them keep program benefits to themselves and simply do not invite others to participate. Segundo Villacres, a 33 year old man living in Riobamba and working as a driver, told me that
leaders claimed aid and project benefits for themselves, while excluding many of the more deserving villagers. He said that his household did not work for the community in mingas because they were told by village leaders that they were not eligible for program inclusion because they did not live full-time in the village. Marlena Hernandez, a fifty-seven year old teacher who lived primarily in Riobamba said that she and her sisters ceased to participate in community mingas in Manzano because they were never included in project benefits or aid programs. She claimed that she was no longer invited to participate and therefore made no effort to do so. Her two adult sisters, Carlota and Nancy, live in the Penipe resettlement and say they stopped participating in Manzano community mingas in 2009 because they felt they were consistently excluded from aid and project benefits. It is important to note that I was unable to obtain any independent confirmation of these claims, and rumors of political corruption and benefit hoarding were common throughout the resettlements and communities in the risk zone.

However, the head of the Penipe Municipal Development office, while unable to substantiate specific claims, did state that leaders in Manzano and neighboring villages had consistently benefitted more than others in the aid and development programs that had come since the eruptions. Moreover, regardless of the veracity of all of these claims, they point to the existence of social and political divisions within Manzano that contributed to the exclusion of some households from mingas and community affairs.

*Minga Participation in Pusuca*

In Pusuca, regular minga participation was a condition of inclusion in the community, as outlined in the community charter. The charter established mingas as the primary means for carrying out projects for community benefit and endowed the
Directiva with the power to organize and schedule mingas. Failure to attend community mingas resulted in a *multa* (fine) of $10 and, as of 2011, failure to attend irrigation mingas resulted in a $20 fine. Moreover, the charter explicitly states that failure to attend four mingas would result in the forfeit of the rights and privileges of community membership. An informal practice evolved over time, which allowed households to make up missed mingas by sending multiple household members or peons to work mingas and/or to complete multiple minga *tareas* (assigned tasks). The result was a well-regimented system of minga organization which mandated the inclusion and participation of all village households.

However, in 2011 there was a total of nine Pusuca households that had migrated to nearby cities such as Riobamba, Baños, and Puyo, and another two that had migrated further, one to the highland town of Latacunga and another to the coastal city of Esmeraldas. There were another twelve households that, although living primarily in Pusuca, nonetheless had at least some members engaged in wage labor in Penipe or Riobamba. Many of these households had turned from primary reliance on agricultural production prior to the eruptions and resettlement to partial or total reliance on wage labor since the eruptions and resettlement. Many of these transitions took place gradually during the nearly ten years that evacuees had languished in shelters, rented homes, and with family members outside Penipe Canton. Lacking the land they had once counted on to sustain their livelihoods, they had progressively turned to other alternatives. Others found the process of colonization of the overgrown lands they were granted in the resettlement to be too time-consuming with initial yields that were insufficient and
unlikely to improve without irrigation. As a result, they turned increasingly to wage employment to subsidize or wholly supplant their agricultural production.

In 2009, mingas were primarily held on weekends in Pusuca. These were challenging to attend for those who were working and living outside of Pusuca, but not impossible. Many were able to return for a day or the entire weekend to participate in these mingas. Some were frequently unable to attend because their unskilled and low-pay jobs did not offer regular hours and often required them to work weekends, and they therefore had to use their meager earnings to pay kin or peons to work in their stead. However, when the irrigation project began, the Provincial Council of Chimborazo and the World Bank hired engineers and paid laborers to design and manage work and therefore shifted mingas to weekdays, as the engineers could not be expected to work weekends. This made it even more challenging for migrants and wage laborers to fulfill their minga duties. Most still made it to the mandatory monthly General Assembly meetings of the Directiva, which took place on the evening of the first Saturday of every month, but weekday mingas were impossible for almost all of them. Some still sent family members, but were unable to afford to pay peons or multas with their paltry earnings. The result was that many fell increasingly behind in their obligations and were threatened with sanctions. Some returned periodically for a week or two and attempted to catch up by working almost daily on minga responsibilities, but this rarely resulted in fully catching up all rayas in arrears.

The findings for hypothesis one are somewhat counterintuitive in that the traditional village mingas were not significantly destabilized by residential distance and wage labor incorporation, whereas these factors did significantly inhibit minga practice in
the resettlement based on newly-established institutions. In Manzano, it is clear that minga participation was primarily disarticulated by the exclusionary practices of traditional leadership structures. At the same time, similar to the crise revelatrice (Sahlins 1972) or the structuring idiom (Henry 2005) of disasters, many from Manzano also exhibited a greater awareness of unequal power relations and the asymmetric distribution of resources in the villages in the wake of the eruptions, displacement, and resettlement. Some of this was brought on by increased scarcity of access to resources for both patrons and clients (cf. Scott 1976; Downing and Garcia-Downing 2009). The effect was increased tension which fomented exclusionary practices and the abandonment of the community by several households.

Mingas were once characterized as being predicated on dyadic contracts and lacking ritual or legal basis (Whitten 1969), which remains largely true for community mingas in Manzano. However, this was not the case in Pusuca, where the legal charter of the community established mingas as a mandatory obligation of beneficiaries and granted the Directiva the rights to organize mingas and sanction non-participants. In this context in Pusuca, the relationship between wage labor and minga participation is perhaps more complex than anticipated in the study hypothesis. The literature on political economy emphasizes that social organization is predicated on the mode of production and that transition from one (e.g., primary production) to another (e.g., capitalist wage labor) will produce significant change in social organization (Jones 2003; Wolf 1982; Mintz 1974) and this has been a primary concern of Andean researchers as well (Martínez Novo 2008; Seligman 2008; Chiriboga 1988). Jones (2003) provides one potential explanation for my
findings in Pusuca by saying that participation in wage labor makes it more difficult to maintain social ties across class lines, but he does not elaborate on why this is so.

Findings in Pusuca suggest that it has a great deal to do with the structuring of time and the unequal power to do so. More specifically, wage labor employment is temporally structured and inflexible, where workers do not have the power to adapt their work routines based on emerging conditions in their lives outside the job. In contrast, primary production, while routinized to some extent, may be structured and modified by the producers and laborers, based on emerging conditions. It is in this latter context that mingas were historically developed. Thus, there is a certain tension and incompatibility between the temporal structures of wage labor and the collective action routines of primary production. But this does not tell the whole story of Pusuca.

Initially, when mingas began in 2009, they were organized on the weekends and most households were able to participate (occasionally sending surrogates or peons), even though there were several that were employed in cities near and far. The tension of temporal structures was then further compounded when the state and several NGOs funded the irrigation canal and began organizing mingas on weekdays based on their temporal regimens, which were based on capitalist structures and thus completely and consistently in tension with the routines to which resettler wage laborers were subjected. The power to structure the times and spaces of minga participation was no longer centered in the community, as it was in places like Manzano, but instead concentrated in external institutions, in the resettlement agency and the state and non-governmental organizations that funded development programs in the community.
Hypothesis 2: Minga participation will be positively associated with total household reciprocal exchange relations

Hypothesis 2 tests the assumption that mingas are forms of reciprocity (exchange labor) in which laborers are continuously recruited by leaders through conspicuous giving. Several tests of the association between total household exchange participation and household minga attendance found that the two are positively associated in Manzano, as expected in the hypothesis. There was, however, no statistical association between these variables in Pusuca. As with hypothesis one, one explanation for the disparity between the two sites likely lies in the open-ended rationales provided by respondents. While only a quarter of Manzano respondents cited obligation as a reason for participating, this was cited by more than 50 percent of Pusuca residents. Moreover, through ethnographic fieldwork I learned that there were strict rules enforcing minga participation and sanctioning failure to participate in Pusuca. Thus, while minga participation may be significantly sustained by reciprocal exchange relations in Manzano, there was a system of rules and sanctions that largely maintains participation in Pusuca. However, although Pusuca exhibited a higher frequency of exchange relations than Manzano overall, it is possible that the types of exchange relations that existed in Manzano had not yet developed in the new resettlement community of Pusuca.

Minga Participation in Manzano

Minga participation in Manzano was significantly associated with the density of a household’s reciprocal exchange relations with the group. That is, the more reciprocal exchange relations a household had, the more likely it was to participate in mingas. Here, what we see is more consistent with the model of minga as dyadic contract (Whitten
1969), where people’s participation is largely based on their reciprocal exchanges with others. We do not find this same relationship in Pusuca because participation was mandatory for all households, regardless of their ties to others in the group. However, as mentioned above, Pusuca was a very new community at the time of research (just 2 years old) and, although more than half of the resettlers were from the same village origin, the types of reciprocity that existed in Manzano had not yet developed in Pusuca. Here it makes sense to draw on Sahlins’ (1974) typology of reciprocal exchange relations, which he distinguished as generalized, balanced, and negative. Negative reciprocity is basically trade, which may be engaged in by strangers and involves the attempt to receive greater value than one contributes to the exchange. Balanced reciprocity is a form of giving where reciprocation of equal value (i.e., balanced) is expected within a usually indeterminate timeframe—not immediately, as this would undermine the value of the gift, and hence the relation by diminishing the display of trust, but delay beyond commonly accepted timeframes would likewise undermine the relation and perhaps result in social sanctions. Balanced reciprocity usually takes place among members of the same community and gift giving is frequently done in public, thus establishing a record of the exchange and enabling social sanctions for failure to reciprocate, which tend to take the form of gossip and public shaming. Finally generalized reciprocity is an ostensibly altruistic form of reciprocity that takes place primarily between kin. This is usually a form of giving without overtly expecting a return, although returns help sustain the relationship over time, when possible and necessary. This is generally what is meant by “social support,” which includes food sharing and childcare. However, an often overlooked aspect of generalized reciprocity, emphasized in Sahlins’ (1974) appendix, is
that generalized reciprocity usually begins in a crisis situation with a *demand* from the recipient, which often cannot be denied. In Manzano, kin and households that have been neighbors for generations engage in all forms of reciprocity, but are more likely to engage in generalized reciprocity than resettlers in Pusuca, where the relationships necessary for sustaining these types of reciprocity have yet to take root.

*Minga Participation in Pusuca*

In Pusuca, it is important to consider the role of the resettlement agency and newly created directiva institution in sustaining minga participation. Under the influence of the Esquel Foundation, minga participation was routinized and enforced through specific sanctions. What is clear from statistical tests of interview and archival data and from ethnographic observations is that mingas in Manzano were based largely on personal relationships that involve reciprocal exchange relations, while mingas in Pusuca were based instead on institutional parameters. In Pusuca, there were clearly stated rules regarding participation. As mentioned earlier, the village charter made minga participation mandatory and levied fines on community members for non-participation. There were other sanctions as well. Households that failed to meet their irrigation minga obligations and did not pay their fines were told they would not have access to irrigation once the canal was completed. In Manzano, there were no fines for community mingas, which were organized by the cabildo. Irrigation mingas, which were organized by the parroquia-wide Irrigation Committee, did include fines for non-participation and, as in Pusuca, those who did not participate or pay their fines would forfeit access to irrigation. These latter mingas had a higher rate of attendance for Manzano than the community mingas, suggesting that this institutional strategy was more effective for the immediate
goal of generating minga participation. However, this strategy did little to build consensus between the communities or trust in the irrigation committee, which was constantly the object of criticism in Manzano and in the other villages in Puela. In contrast, while community mingas in Manzano did not have the same degree of participation as the irrigation mingas, community minga participants tended to convey a sense of unity and trust in one another. In community mingas, gossip focused on other communities, not on others from within Manzano

**Hypothesis 3a: Decision-making influence and brokerage power will be positively associated with total reciprocal exchange relations with the group**

Statistical tests found that there was a significant positive relationship between exchange participation and brokerage and decision-making power in both sites, as anticipated by hypothesis 3a. This suggests one of the ways in which politically powerful individuals maintain and exercise their power is through exchange relationships. Those with more exchange ties are more likely to be turned to for access to scarce development resources and to have their views and agendas supported. This finding is supported by ethnographic observations that will be discussed in the concluding chapter.

*Political Power in Manzano*

Bernardo Huerta was *the* decision maker in Manzano. In 2011, he had been serving as Cabildo President for twelve years, ever since the first eruptions of Mt. Tungurahua. One of the wealthiest landowners in the village, he also served as president of the *Caja Comunitaria* (cooperative savings and loan) and treasurer of the Manzano Potable Water Committee. In the 1990s, Bernardo secured the backing of Padre Tomas Puerres, the powerful head priest of Penipe Canton and the head of an influential non-
profit foundation and medical center in Penipe. Through Bernardo, Padre Tomas
provided financial backing for the Caja Comunitaria, which many saw as the catalyst for
Bernardo’s rise to power. Bernardo also served on the regional Community Emergency
Operations Committee, which was the citizen leadership board of disaster emergency
management that coordinated emergency response and risk management with municipal,
state, and federal authorities. In addition, Bernardo served as a special advisor to the
Junta Parroquial of Puela, as a result of his close political alliance with the Junta
President. As Cabildo President, Bernardo was also the main liaison to the Provincial
Council and several non-government organizations operating in the region.

Other leadership positions in Manzano changed little between 1999 and the 2011
and were primarily held by Bernardo’s two main deputies, Victor Ramirez and Mateo
Barragan, also wealthy landowners who alternated between key leadership positions,
including president of the Potable Water Committee, Vice President of Cabildo, and
President or Vice President of Seguro Campesino (peasant healthcare cooperative).
Meetings were generally ad hoc and almost exclusively presided over by Bernardo,
although he occasionally delegated the responsibility of convening meetings to either
Victor or Mateo when he was out of town. It was rare for others besides Bernardo to
speak in meetings, except to ask a question or to report on an issue Bernardo had
requested. This was in many ways a natural extension of the Ecuadorian system of
clientelist politics—outside organizations approach village leaders to deliver their
constituents to a given project or cause. As a result, all information on potential and
ongoing funding, aid, development, and disaster-related projects came to Manzano
almost exclusively through Bernardo and he had almost unfettered influence over who was included.

*Political Power in Pusuca*

Research on Ecuadorian cooperatives suggests that leadership by the poor can help to reduce the tensions produced by economic inequalities in the group without actually changing the economic disparities (Jones 2004). In Pusuca, decision making was far more inclusive of community members than in Manzano, but as can be seen in the study results, the process was not all-inclusive. Unlike Manzano, there was little redundancy in leadership of the various committees. Directiva President Angel Turushina was also President of the Caja Comunitaria and had formerly served as Secretary of the Directiva, but that was the extent of redundancy at the time of research. There was nothing in Pusuca that resembled the tight-knit circle of leadership that prevailed in Manzano. In fact, while wealthier landowners had held leadership positions (see chapter three and below), many of the leadership positions on the various committees (Directiva, Caja Comunitaria, Irrigation, Potable Water) were held by formerly poor and politically marginal individuals. Directiva President, Angel, was a young man who came from a relatively poor family who lived on a hacienda on the outskirts of Puela Parish. His influence and ultimate election was perhaps aided by the many kin he had in the resettlement, but he was generally perceived as an intelligent and just leader whose youth and new ideas were an ideal break from the entrenched political power of wealthy landowners that dominated politics before the resettlement and in its first years. Unlike the cabildos in Puela, where women only occasionally had leadership roles, women were well represented on the directiva and other committees in the village and played active
roles in decision-making. Moreover, many of the women who increasingly assumed leadership roles were from economically marginal households. The process of decision-making in Pusuca was generally based on popular vote, with little power truly vested in the elected leadership. This is partially because all decisions were voted on by a raise of hands and partially because, ever since Pusuca’s founding in 2008, the meetings have been monitored, guided, and arbitrated by an ever-present Esquel representative.

In general, there was a greater amount of reciprocal exchange relations between households that spent the better part of their time in Manzano or Pusuca. This was generally part of goodwill between neighbors and often based on a neighbor’s perception of another’s need. Indeed, members of several households in both sites told me of gifting food, money, and clothing to neighbors in need and I observed this on several occasions. Of course, just as those who were most often present engaged in more exchanges, those who were most often present were more likely to hold leadership positions and participate in decision making.

Even in Pusuca, where attendance at monthly General Assembly meetings was mandatory for every household and decision making was generally inclusive of most attendees, resettlers living full-time in the village clearly exerted greater influence than those who did not. Resettlers who lived part-time or more outside Pusuca were not explicitly marginalized, but they tended not to participate as much and, when they did, they did not typically find much support from others in the group of full-time residents. When I discussed this with informants who lived full-time in Pusuca and others who lived part-time away, they tended to give similar explanations of the implicit marginalization of part-time residents, which took shape in two ways. First, all residents
were required to attend monthly General Assembly meetings of the Directiva and could be sanctioned for not doing so. They could (and often did) send another family member or representative in their stead when they could not attend for work or travel reasons. Sending a surrogate avoided the sanction for non-attendance, but no one besides the named beneficiary had voting privileges; that is, if a woman was the named beneficiary of the house in Pusuca, her husband had no voting rights in her absence and vice versa.

Secondly, informants generally agreed that part-time residents tended to make suggestions and argue points that were out of sync with the priorities of the full-time residents. In my observations of meetings, these suggestions tended to be for alternative schedules for mingas and meetings to enable part-time residents to attend and participate and for relaxing rules for benefit inclusion to accommodate part-time residents.

*Political Strategies in Manzano and Pusuca*

During fieldwork I observed that there was some connection between gifting and the maintenance of power in both communities. This was mostly in the form of small-scale feasting, a practice that has been noted elsewhere in Ecuador (Colloredo-Mansfeld 2009) and other Andean contexts (Mayer 2002; Deere 1990). Village leaders in both sites would periodically make a show of gifts to people in the village, which could take multiple forms, but were usually in the form of food or alcohol. In Manzano, Bernardo would occasionally be absent for all or part of a minga, but afterward he would arrive with sweet cakes and cola for the workers. He would also regularly pay some of the women to purchase snacks and cola for village meetings as well. In the weeks leading up to the village fiesta of San Miguel, Bernardo spoke several times about how his household alone would bear the special responsibility of feeding the large band that
would come play for the village, each time emphasizing that he was not wealthy, but would make this special expense for benefit of the group. Prior to 2011, it was common for village leaders to bring substantial quantities of *puro* (homemade cane liquor) to mingas and dole it out during work, but a nationwide outbreak of deaths and injuries from puro in early 2011 resulted in the outlawing of the drink, which significantly reduced its circulation in mingas. Nonetheless, Bernardo and his inner circle would still occasionally provide puro for minga workers. On other occasions, he would purchase one or two cases of 22 ounce beer bottles that would be poured into cups and gifted to workers and meeting attendees. Often, after the first case was consumed, one or more of the lesser leaders would send out for another case at their own expense. During village fiestas, villagers often purchased one or two bottles of beer or a small bottle of liquor to share with others and this would be reciprocated until village leaders, usually Bernardo or Mateo, arrived and purchased a case or more of beer and ceremoniously doled it out to the group.

Leaders in Pusuca often made similar displays of generosity to the group. Village president Angel, who had very successful yields of strawberries and other fruits on his land in Pusuca, would frequently share the bounty of his twice weekly harvest with others in the village. He would also make a show of this when outside visitors, usually representatives of Esquel, but also of other state and non-governmental organizations, came to visit Pusuca. His wife, who ran a small convenience store in their home, frequently loaned goods to other villagers. As in Manzano, alcohol was commonly distributed by leaders to others in the village. In 2009, then-President Manuel Reyes frequently distributed puro to minga workers, but the outlawing reduced its currency in
Pusuca as it had in Manzano. Beer and whiskey became common substitutes. It was common for the inner circle of Pusuca leaders and their closest friends and allies to gather in front of Angel’s house prior to village meetings and Angel would hand out glasses of beer to the men and other leaders would often reciprocate. After meetings, the men would gather and Angel and other leaders would take turns purchasing beer and whiskey for the group. Manuel Reyes, who in 2011 served as Vice President, had distanced himself from other leaders and tended to assemble his own factions near his house, where he would share from his private stash of puro as he had in the mingas in 2009.

These forms of exchange helped build and maintain trust between disaster-affected people and resettlers just as they had prior to the disasters and resettlements. They also serve to build and maintain power in several ways. Gift giving and other forms of reciprocity helped to build trust and solidarity, as the people who engaged in these practices came to rely upon one another in the process. People who engaged in more exchanges were more likely to rise to power in both communities based upon the strong relationships they built and maintained, which made them more likely to be elected to leadership positions and more likely to speak up in decision-making contexts and to be supported when they did so.

**Hypothesis 3b: More powerful actors and their allies will have a greater share of development benefits than others**

Statistical tests also found a significant positive association between the extent of exchange relations with powerful households and inclusion in disaster relief and development projects, as expected in hypothesis 3b. The conclusion is that it is not only
the powerful who benefit from unique ties to outside resources, but also their less powerful allies within their communities. Examining respondents’ stated reasons for non-inclusion in the four different programs I asked them about provided a more complete picture than statistical tests alone. It is evident that there was a substantial number of cases where there were practical and self-imposed reasons for non-inclusion (e.g., lack of need or interest). However, outright exclusion and other soft forms of exclusion (e.g., not being informed) were cited by many respondents for non-inclusion in each of the programs in both sites.

In order to interpret these findings, it is important to add some context for each site. As described in the previous chapter, the test of this hypothesis was based on inclusion in food rations from the Ministry of Economic and Social Inclusion (MIES), animal feed rations from the Ministry of Agriculture, Farming, and Fisheries (MAGAP), agricultural extension projects from various organizations, tractor services from the Junta Parroquial of Puela (Manzano only), and greenhouse projects (Pusuca only). While three of the four programs in each site were common to both sites (MIES, MAGAP, and extension), I learned in the course of fieldwork that they were not organized in the same way for both sites. It is important to discuss the different ways in which these programs were organized for the residents of each site in order to interpret the significance of the research findings. Although the hypothesis test was positive in both sites, it was significant in each site for different reasons.

The MIES and MAGAP programs were organized through the Junta Parroquial of Puela and the various constituent cabildos, including Manzano. Whenever these programs were organized, locals would complain that people from outside the region came to
receive rations, but I never observed this. Instead, I observed the same cadre of Manzano’s inner circle assembled either at the Manzano casa comunal or the building of the Junta Parroquial in Puela to receive rations. Bernardo and the other cabildo presidents would be notified of a given program by the Junta Parroquial and tasked with assembling their constituents on a given day and time. Bernardo, like the other presidents, favored his core groups and did not generally extend invitations to all households in their villages. This is not to say that those outside the core groups were roundly excluded; often others would be notified by kin or other ties in the resettlements or neighboring villages and subsequently arrive on time for the programs and cabildo presidents did not overtly act to exclude them in any way. Agricultural extension programs in Parroquia Puela were often organized by MAGAP and various non-governmental organizations directly through the individual cabildos and were therefore more subject to the exclusionary practices of the cabildos. However, cabildo presidents were often under pressure to deliver high turnouts of participants, which led Manzano Cabildo President Bernardo to go beyond his normal cohorts and recruit a greater number of participants. In male headed households, there was a tendency to first recruit the males, but Bernardo tended to recruit household participation through whoever was the most convenient to locate and there were numerous instances where the women of the household were easier to locate than the men. There was no explicit preference for males outside of the core leaders (mainly Vicente and Mateo). Bernardo would also sometimes recruit some other Manzano constituents not typically invited, but also invite allies from neighboring villages, although the latter was at times discouraged by program agencies.
The tractor program was organized by the Junta Parroquial of Puela and anyone was eligible for its services. This was an important service because, although plowing was important under pre-volcanic conditions, the presence of new volcanic ash in the soil made it all the more so. The tractor was purchased by the Junta in early 2011 and was contracted out to interested parties, with a dedicated operator hired by the Junta, at a subsidized rate of $7 per hour (compared to the market rate of $12 per hour). Complaints began almost immediately. Countless individuals signed up for the tractor, many of them multiple times and, even after paying in advance, never saw the tractor come to their lands. While people were able to recover these funds, it was difficult to make up for time lost without plowing in order to plant crops. One problem was that one tractor was simply insufficient to meet the needs of the entire parroquia (roughly 300 households) and scheduled plowings were rarely completed on time, meaning that the next in line was frequently bumped off the list for a given day. The other problem was that the tractor tended to more reliably make it to the lands of politically connected households than others.

Unlike Pusuca, where the intervention of a non-governmental resettlement organization helped build new political institutions and a system of bylaws for participation and project inclusion, political power in Manzano was based on the traditionally male-dominated patron-client political networks that have characterized the region for more than a century. Although most of its people have resettled to Penipe, Pusuca, or Riobamba, Manzano itself has not been displaced as a community, as a set of institutions; its traditions of leadership and the leaders themselves have been in place for a long time. It is therefore not surprising that local leaders, serving as patrons and brokers
to a client community, tend to accumulate greater shares of aid and development resources and to facilitate the inclusion of their allies. The inequity of access and control of these scarce external resources is frequently no secret at all. Indeed, one need only stroll across Cabildo President Bernardo’s land to see evidence of this. Here several goat barns and a half dozen plastic greenhouses bear development organization and project placards that you will not see on any of his neighbors’ properties.

Outside of Manzano, in the hills overlooking the resettlement, Bernardo and 19 of his closest allies from Manzano secured 1 hectare of land each for themselves, to transport their cattle out of the risk zone and to grow crops. Among those in the group of beneficiaries are some of the more land wealthy residents of Manzano, but not necessarily the most likely to participate in mingas. Instead, these individuals are rewarded because they are loyal supporters of Bernardo and his projects. This sort of participation often substituted for minga participation and, subsequently, benefit and project inclusion.

Asymmetries in the distribution of political power and resources are neither new nor surprising in Manzano, although tensions could and did arise in the contexts of disaster, relief, displacement, resettlement, and development where these asymmetries were more pronounced as a result of resource scarcity and demand for resources that now came from outside and were channeled through local hierarchies. Scott (1979) says as much about the unequal power of patron-client relations being tolerated so long as they remain mutually beneficial, but points out that resistance emerges as a result of increased scarcity or extraction. In disaster research, Henry (2005) states that a disaster may serve
as a “structuring idiom” that illuminates for political actors their own political power or marginality relative to the state and other political actors and precipitates resistance.

Privileged inclusion in project benefits is not exclusive to Manzano, but it was far less extensive in Pusuca. Although statistical tests found that there was a significant association between reciprocal exchange ties and program inclusion in Pusuca, I learned in the course of fieldwork that there were several mitigating factors, few of which were tantamount to exclusionary (or privileged inclusion) practices within the Pusuca resettlement itself. Two of the programs (MIES and MAGAP rations) were not directly administered in Pusuca, but instead in the parroquias in the risk zone where many, but not all, Pusuca resettlers were still farming and even living part-time. Many Pusuca resettlers were either not informed of these programs in their parroquias of origin (although all were technically eligible) or they were not interested, as they were no longer cultivating crops or keeping animals in the risk zone. In most cases, Pusuca resettlers who were also among the wealthier landowners in the risk zone were more likely to be included because they still had substantial crops and animals in the risk zone and therefore had more of a presence in the risk zone than did others. Thus, although these resources tended to go to the wealthier and more connected, it was not necessarily a direct result of exclusion or privileged inclusion within the Pusuca resettlement per se.

There was, however, marked exclusion in the initial greenhouse projects in Pusuca, which began in 2009. As mentioned in chapter three, Pusuca’s second president, Manuel, was for some time able to exclude beneficiaries from greenhouse projects for the market production of tomatoes and include his closest political allies. This exclusion did particularly target three women—the first president, Mariana, her daughter, who had a
house of her own in the resettlement, and their close friend and ally, Blanca. It did not appear that this exclusion was particularly targeted at these women because they were women per se, but as a result of a long-standing feud between Manuel and Mariana and her kin that predated the resettlement. This sort of exclusion was largely neutralized by Esquel’s representative in the community and the initial greenhouse project had failed as a result of community in-fighting by early 2011. Later that same year, however, Esquel secured funding for a new greenhouse project, but this project was limited to only four households and many others claimed they simply were not interested because of the problems faced in the earlier project. However, it is important to note that, as with countless development initiatives worldwide, many, such as the greenhouses in Pusuca, begin as pilot initiatives to be evaluated, revised, and expanded where feasible and desirable, so this project should not be evaluated on narrow criteria of inclusion alone.

There were several agricultural extension projects facilitated by Esquel and funded by outside NGOs. These included crop diversification, greenhouse horticulture, and farmer-to-table programs and other agricultural market strategies. As with minga organization, these programs were not organized to accommodate resettlers with jobs or part-time residences outside Pusuca. Events were often hastily organized or scheduled on days and times that made it difficult for resettlers who did not maintain a full-time presence in Pusuca or else had routinized work schedules that were difficult or impossible to change in order to participate in extension programs. The arrival of representatives of outside organizations to assess the interest in and feasibility of new initiatives and to recruit participants might be announced only a day or two ahead of time at lesser committee meetings (i.e., not always in the monthly mandatory General
Assembly meetings) or posted on a whiteboard outside the president’s house. This short notice at times made it difficult for people to attend. As a result, several households that engaged in multiple economic strategies (i.e., wage employment and agricultural production) and therefore found the process of forested land colonization most challenging were unable to access institutional support that might have facilitated this process and enabled them to more fully focus their livelihood strategies in the resettlement.

**Gender in Minga Practice and Village Politics in Disasters and Resettlement**

Although gender did not really register with study hypotheses, it has factored into minga practice and political power in the study sites in several ways worth discussing. While gendered dynamics have been mentioned in several contexts of the discussion so far, because of the importance of gender in Andean culture (Colloredo-Mansfeld 2009, 1998; Jennings and Bowser 2008; Weismantel 2001, 1989), reciprocity (Komter 1996; Strathern 1990), disasters (Enarson 2001, 1998; Enarson and Morrow 1998), and resettlement (Koenig 2001; Colson 1999), it is important to consider the role of gender in the present research context more thoroughly.

**Gendered Division of Labor**

In this study, gender was significantly associated with wage employment in Pusuca, where men were more likely to engage in wage employment than women. There was a greater number of employed men than women in Manzano as well, but statistical tests of the association between these variables were not significant. This is unsurprising and consistent with national trends where men consistently outnumber women in the labor force, although the difference has narrowed in recent years (World Bank 2012).
There was likewise no significant difference between the residential distance of male- and female-headed households in either site, which suggests that displacement and resettlement did not result in a gendered differential in the disarticulation of community networks. And, as wage employment was expected to be negatively associated with minga participation, since there were less employed women than men, it is similarly unsurprising that there was no significant association between gender and minga participation. This points to a potential constraint on women’s economic strategies in a post-disaster and resettlement context, but it also points to a gendered division of labor in mingas.

The division of labor is arguably the most salient gendered form of difference in minga practice. In his study of mingas in the indigenous communities of Otavalo, Ecuador, Colloredo-Mansfeld (1998:199) observed women carrying children on their backs while they attended to domestic chores, worked in the fields, and labored on mingas. He interprets this as weaving maternal and political responsibilities together, but does not explicitly recognize the added burden and the fact that women do not so much appear to be “weaving together” responsibilities so much as they are doubling up on them. Although hypotheses for the present study did not consider division of labor in mingas, I did observe decidedly gendered patterns in the division of labor similar to that observed by Colloredo-Mansfeld, which were discussed in chapter 3, but are worth revisiting here.

The gendered division of labor depended on the type of minga and on the site and generally took one of the following four forms. First, in the community mingas of Manzano, men tended to work with tools, while women performed more generalized
tasks that were frequently more labor intensive than those performed by men, although the division was not perceived as such. One example provided in chapter 3 was a community minga to cut *chamisa* (eucalyptus branches for ceremonial parades). Here, the men worked with saws, machetes, and hatchets to cut branches, saplings, and fell trees at the top of a 100 meter slope, while the women and children hauled large bundles of the branches to piles alongside a path at the base of the slope. While the men thanked women and children for “helping” them, the work performed by the women in constantly descending and ascending the slope with the weight of large bundles of branches clearly demanded appreciably more energy than that spent by the men hacking branches at the top of the slope.

Second, the irrigation mingas on Pusuca developed standardized *tareas* (tasks) for each minga. These were initially proposed by men in the group and later ratified by the directiva in order to make sure that every household made equal contributions to irrigation minga labor. The men who proposed this made no explicit mention of gender in building their case for tareas and it is unclear if this was a salient factor in their consideration. The proposal of tareas was explicitly made because many in the village felt that the greater share of the labor had been performed by a few, while others only showed up for allotted minga times and performed little work. The outcomes of the tarea system were manifold in terms of the division of labor. The most common tareas were to dig trenches ten meters in length and one meter deep or to haul 100 shovelfuls of sand and stone for roughly 80 meters over uneven terrain at high altitudes (~3,000 meters). Women, the elderly, and some of the smaller men had a much more difficult time completing their tareas than the more able-bodied males. Able-bodied men hauled 100
shovelfuls of sand and stone in sacks carrying 10-12 shovelfuls per load, completing their tarea in 8-10 trips, while women and the elderly carried sacks of 3-6 shovelfuls and completed their tareas in more than 20 trips. This was even more pronounced when the tarea involved trench digging. Some men completed their trenches by midday, while some women and the elderly had to work several days to complete their trenches. Several women and elderly residents complained of injuries and over-exertion in these mingas. As a result, several female-headed and elderly households would pay peons to work in their stead on tarea mingas, which resulted in an uneven cost burden. The fine (multa) for failing to attend an irrigation minga (or complete the tarea) was $20, while it cost $10-$12, plus three meals, to pay a peon to work for a day. However, peons, like several members of the community, often had to work two or more days to complete a tarea, which could quickly run the costs of the tarea up and deplete limited household cash reserves.

Third, in irrigation mingas in Manzano (organized by the Puela Irrigation Committee) and the community mingas of Pusuca, men and women work side-by-side with little evidence of a gendered division of labor, although subtle differences do emerge. In these mingas there are no tareas and rayas (attendance credits) are granted to those who work until the minga is over (typically 8am until 2-4pm). In these projects, men and women work alongside one another, completing tasks as a unit. A common task in these mingas in both sites is the clearing of ash, soil, overgrowth, and other debris from irrigation canals, potable water systems, and roads. In the process, men and women work in mixed-gender groups that leapfrog one another as they clear each section of the way. Some men do break off from the groups and walk ahead with machetes, clearing
larger overgrowth from the way. This is more common in Manzano and Puela than it is in Pusuca, and is more a product of the gendered division of leadership in the old villages. The men who wander ahead with machetes are often cabildo or committee leaders who are, to some extent, directing the work parties and for whom wandering ahead with machetes is also an opportunity to survey work progress and upcoming tasks along the way.

Fourth and finally, as cited by Colloredo-Mansfeld above, childcare responsibilities frequently are an added burden for women in their participation in minga labor (to say nothing of elsewhere). In irrigation and community mingas in both sites, women were frequently accompanied by their young children. This was less common in Manzano, where the population was significantly older than Pusuca and there were therefore less young children overall. Still, women working mingas frequently had to attend to childcare responsibilities at the same time. Alternatives were limited, as males rarely assumed the duties of childcare in these communities and there were few other options. In Pusuca, the Esquel Community Coordinator, Martha, helped start a daycare facility in an unoccupied house in early 2011 with funding from the National Institute of Children and Family (Instituto Nacional del Niño y Familia, INNFA). This was intended as a small employment opportunity for women in the village and to help support women’s work in agriculture, pastoralism, employment, and mingas. Some women, however, did not take advantage of the daycare and continued to rely on kin and neighbors for childcare support (more on this below), or else continue laboring with their children on their backs or tucked in the shade while they worked. Some women cited conflicts with the other women operating the daycare as a reason for not utilizing the
services and, by the end of 2011, the daycare lost funding because of underutilization, in spite of last ditch efforts by Martha to save the daycare by attempting to partner with a neighboring village.

*Gender and Reciprocity*

Gender factors into reciprocal exchange practices in complex ways. In the West and cross-culturally, women have been found to both give and receive more gifts than males (Yan 2005:248; Komter 1996; Susser 1982; Lomnitz 1977; Stack 1973), a tendency that may be tied to traditional gender roles (Cheal 1988). In the present study, gender was not significantly associated with participation in reciprocity overall, although the study is limited to considering only binary participation in reciprocal exchange categories (see chapter 7). With that said, ethnographic observations suggest important gendered differences in three primary domains of reciprocal exchange practices in the study sites. The first was alluded to above and concerns the related issues of childcare and division of labor. Simply put, women not only have the added responsibility of caring for children in addition to economic, household, and communal (i.e., minga) responsibilities, balancing these responsibilities can increase their obligation to engage in some exchange relations (i.e., give gifts or services), while reducing the returns they might receive from these exchanges. For example, lacking viable daycare options, women in both sites tended to rely on kin and other close ties to share childcare responsibilities. Being able to leave her child with a neighbor for a day might enable a woman to tend to her fields or work in a minga, but she then has an added obligation to her neighbor. This might take the form of sharing meals (more on this below), alternating
days for childcare responsibility, or loaning tools or money. All three of these options
decrease a woman’s scarce economic reserves while increasing her obligations to others.

Importantly, childcare responsibilities factor significantly into the returns a woman earns for working as a peon. While men will earn an average of $10-$13 per day, plus two or three meals, women earn an average of $8-$10 per day. The most commonly cited reasons for this difference in compensation are that women perform less work than men in the same amount of time and they often bring children to work who must also be fed. These practices and perceptions not only mean that women will earn less than men as peons, but also that women are generally less desired than men for most peon labor.

Secondly, as mentioned above, alcohol was an item commonly exchanged in mingas, village council meetings, and fiestas, and this was a common reciprocal exchange practice throughout the Andes (Jennings and Bowser 2008; Colloredo-Mansfeld 2009). Although both men and women drank alcohol, their relationships to the practice of alcohol consumption and reciprocity were different in important ways (Jennings and Bowser 2008:10). The practices of serving, consuming, and exchanging alcohol were gendered in important ways. Men would consume alcohol in a variety of contexts, while women tended only to consume alcohol in fiestas or when it was directly offered to them in mingas and (rarely) in village council meetings. In Pusuca and Manzano, it was almost exclusively men who gave alcohol in all contexts, although younger women sometimes purchased and shared alcohol with other men and women at fiestas. In mingas, village council meetings, and most fiestas, however, it was the men who purchased and exchanged alcohol and, as Jennings and Bowser (2008:10) observe,
although both sexes drink, in these contexts “a man’s relationship with other men is affirmed through drinking.”

In the communal activity of drinking in Manzano, Pusuca, and the wider Andean region, a group exchanging and consuming alcohol does so with just one cup, which was filled and served to each individual in the group. The server was rarely the same person who purchased the alcohol for the group. Instead, another member of the group would be assigned the task of serving and, when there were women present, the server would almost always be a woman who would pour out the drink for each man in the group. Women, typically the server, would be invited or encouraged to take a drink (or several) as well, but this was more often part of the novelty of seeing a woman drink, especially when consuming the hard cane liquor, *puro*, produced in the region. Importantly, men built relationships and allegiances through the exchange of alcohol in ways that women did not and their participation in the exchange and consumption of alcohol was largely regarded as a novelty.

Conversely, there may be limited apertures for women’s exercise of power in the consumption and exchange of alcohol. In their pan-Andean study of the role of alcohol consumption and exchange, Jennings and Bowser (2008:2) observed that a woman serving beer to her husband might reinforce traditional gender roles, but the act may be infused with a woman’s exercise (however limited) of power by alternately spilling, withholding, or over-serving beer to punish her husband without necessarily departing from social norms (see also Weismantel 2001; Bowser 2004). In Bolivia, Harris (1996:251) found that women who control household budgets resist converting household assets (livestock) into cash unless there is an immediate need for a purchase, which can
protect against the negative effects of inflation, but also prevent men from excessive spending on alcohol consumption.

The third and final domain of gendered difference observed in reciprocal exchange practices is that of the gifting of meals and prepared foods. The present study formally considered only exchanges between households in semi-structured interviews and thus did not capture sufficient nuance in gendered differences in types of exchange through these data (see chapter 7 for an explanation). However, as above, I observed gendered trends in some forms of exchange. One of the most common was the exchange of meals or prepared foods which, unlike every other form of exchange observed in the study sites, was almost exclusively practiced by women as the giver or preparer. Even in instances where male household members offered food or a meal, it was always prepared by the women of the house. In one respect, men could develop relationships by offering meals that the women prepared, an exchange that clearly appears to reflect the gender dominance of men in the community. However, as documented by studies of the reciprocal exchanges of the urban poor (Gonzalez de la Rocha 2001; Susser 1982; Lomnitz 1977; Stack 1973), women build important economic and political alliances through the exchange of food and everyday items with their neighbors, but it is men who primarily occupy roles of political leadership. In both Manzano and Pusuca, this was evident, as married and single women often cooked for single men and in the process built relationships of solidarity that would manifest in help with minga tareas and household chores as well as vocal support in village council meetings.

In Aafke Komter’s (1996:124-125) excellent review of women, gift-giving, and power, she outlines four possible gender models of power to interpret women’s greater
participation in reciprocity: (1) men benefit more than women; (2) women and men benefit equally; (3) women benefit more than men, and; (4) “a condition of alternating asymmetry, in which men and women profit alternatively from the dominant and gendered patterns of gift giving.” After reviewing each, Komter comes to favor the fourth model based on Strathern’s (1990:328) discussion of gender in Melanesian reciprocity, where she posits that “it is agents, not structures, who act.” This is to say that gender inequality, as expressed through reciprocal exchange practices, may coexist with acts of genuine parity, and the exercise of power might alternatively benefit men or women in the context of otherwise gendered hierarchies (Komter 1996; Strathern 1990). Women might gain access to scarce material and political resources through relationships brokered through reciprocal exchanges, while simultaneously being implicated in the reification of stratified gender roles (e.g., woman as caregiver or domestic servant). What matters, then, as with most anthropological endeavors, are the particulars of the contexts in which these exchanges are performed and relationships built.

**Gender, Political Power, and the Distribution of Resources**

Gender is a central variable in the distribution of political power and resources at the village and broader regional levels throughout the Andes (Colloredo-Mansfeld 2009; de la Torre 2006; Deere and León 2001). Decision-making authority is primarily accorded to men in rural village politics (de la Torre 2006:252). There were three specific gendered trends in the distribution of political power and development resources I observed in both sites that are worth mentioning. First, it is important to consider the difference in the gendered composition of leadership in the two sites. In Manzano, the only leadership positions held by women from 1999-2011 were as secretaries for the
cabildo and the Seguro Campesino. In Pusuca, women held a variety of leadership positions since the community’s inception in late 2008. The first president of the community was a woman and women served in several capacities on all village committees (Directiva, Caja Comunitaria, Irrigation, Potable Water). Men still outnumber women in leadership roles in Pusuca, but the difference is marginal (11-9 in 2011). The difference in Pusuca can largely be attributed to the influence of the Esquel Foundation, which was noted above and need not be elaborated upon here. It is also possible that in the liminal and socially heterogeneous context of resettlement, previously or traditionally marginalized or excluded actors, like women, moved into the vacuum created in the new situation (Linda Whiteford, personal communication).

The second gendered issue worth discussing in this context is the comparison between the leadership positions and the leadership practices of men and women in Manzano and Pusuca. In his study of village politics in Otavalo, Ecuador, Colloredo-Mansfeld (2009) observed a trend of village councils being dominated by males who often had to contend with vocal female dissenters. In spite of the difference in the gender composition of the village leadership in the two sites, the gendered differences of leadership were surprisingly similar. Although there were some exceptions, men tended to set agendas and lead the decision-making process, while women tended to constitute a sort of loyal opposition, frequently challenging decisions and offering alternative courses of action to those posed by the leadership. In Manzano in 2011, this generally took the form of sarcasm, joking, and vocal asides between the women, which would often be considered by the village president, Bernardo. For example, in an instance where Bernardo proposed a minga on a certain day, some of the women would joke out loud
“Yeah, good luck getting everyone to show up on a Sunday!” and Bernardo might reconsider his plans and choose another day. At other times, women’s dissent could result in tension and this was more common in 2009, when there was a larger group of women participating in Manzano. For example, on several occasions women directly challenged Bernardo’s legitimacy as a leader because he went along with the work plans of the Puela Irrigation Committee in spite of the fact that these projects did not directly benefit Manzano. After several tense exchanges with women in his own community, Bernardo began to directly confront the leadership of the Irrigation Committee and went so far as to boycott irrigation mingas for several months, while encouraging the women of Manzano to voice their dissent in parish-wide meetings of the Irrigation Committee and the Junta Parroquial. Finally, in Pusuca the trend was similar, although the dissenting voices of women were often more directly confrontational than in Manzano (especially during 2009, when ex-president Mariana and her allies were engaged in a prolonged battle with then-president Manuel). Dissenting opinions might be couched in humor and joking, but often women simply presented alternative courses of action directly or else voiced vigorous opposition to decisions and particular practices. Thus, women influenced decision-making in both communities in ways that were socially acceptable, albeit from the marginal position of opposition.

In Andean contexts and in disasters and resettlement, gender has been found to contribute to differential access to economic and development resources (Wisner et al. 2006:11; Shepler 2002; Sommers 2001; Anderson and Woodrow 1998; Ferguson and Byrne 1994; Weismantel 1989). However, statistical tests of the relationship between gender and the distribution of aid and development resources did not find any significant
relationship between these variables in either site. In Manzano, there were nonetheless several women who claimed in interviews that they were denied inclusion in aid and development resources. In Pusuca, the Esquel Foundation placed an emphasis on including women in development programs and, though there was tension between certain men and women in the community over inclusion in the greenhouse projects, men and women were generally equally included in village development programs.

**Significance of Findings for Disaster and Resettlement Research**

The findings for hypothesis one call into question certain theoretical models of resettlement, while confirming others. Downing and Garcia-Downing (2009) suggest that resettlement is a process of transition from routine culture to dissonant culture to a new routine culture. These routine cultures are defined by “roughly the same people, or groups, repeatedly reoccupying the same places at the same times” (Downing and Garcia-Downing 2009:228, italics in original). In this model, the antecedent routine culture is replaced by a dissonant culture that temporarily reorders space, time, and relationships before emerging into a new routine culture. This model is problematic because it presumes a sort of pre- and post-resettlement stasis, brackets out potentially perennial tensions of routine cultures, and allows for a return to a presumed “normal.” I say problematic because it largely ignores the tensions and inequities that exist in communities prior to resettlement and which might affect recovery and the political and economic sustainability of resettlements. This same problem is present in the Scudder and Colson (1982) model, which is likewise based on a transition from self-sustainability to crisis and back to self-sustainability and the “handing over” of resettlement affairs from outside institutions to the resettlers themselves without allowing for the
perpetuation of domination and dependence between and within agencies and resettler communities.

In a broad sense, competing models more closely capture the complexity of resettlement (de Wet 2006b). Cernea’s (2003, 2000, 1997) impoverishment risks and resettlement model better points to the complex interaction of institutions, social groups, and economic factors that have both proximal and distal consequences for risks of impoverishment in resettlement. However, Cernea’s model lacks an attention to power relations and the complexity of resettler social organization. Whiteford and Tobin’s (2009) model emphasizes the “cascading” of impacts of disasters and resettlement, specifically calling attention to their complexity and capacity to perpetuate the vulnerability of resettlers and disaster-affected peoples. This model, like Cernea’s, provides an outline of domains to be attended to in disaster research, but it could be improved by greater specificity or schematics hypothesizing the ways in which these domains might interact and under what conditions and furthermore including attention to power relations in each domain. To wit, in order to advance anthropological theories of social organization in disasters and resettlement, we need to go beyond both formulaic reductions of stasis—crisis—stasis and vaguely defined models of complexity.

This study focused on forms of reciprocity and power relations in order to explore the ways in which these factors might affect disaster recovery and resettlement. Reflecting on these findings, it is worth asking why the community minga strategy was less effective and inclusive in Manzano than in Pusuca. One possible explanation is simply that traditional community organization was strained by displacement and resettlement. As discussed above and in chapter two, there is a significant body of
evidence that volunteerism from core networks is frequently followed by a decrease in availability of support and an increase in conflict and weakened social networks (Ritchie 2012; Henry 2005; Norris et al. 2004; Hoffman and Oliver-Smith 2002; Bolin et al. 1998; Palinkas et al. 1993). Manzano organization had long been based on patron-client relations, which, as others have pointed out (e.g., Scott 1976), are inherently unequal, but endure so long as both parties benefit. The period of prolonged displacement followed by resettlement was a time during which people would seek assistance from kin and neighbors who were themselves seeking assistance and therefore often unable to give or reciprocate. The tension is this context continued to build as some members of the Manzano community took notice of the fact that some accessed forms of support that others did not. The disasters and ensuing displacement thus revealed some of the inequities in the community and people grew more vocal in questioning and challenging these inequities.

In 2009, when Manzano first began organizing mingas again after the resettlements had been operating for nearly a year, I observed a significantly higher rate of participation than I did when I returned in 2011. In 2009, I also observed some community members questioning and challenging village leadership. Those who I observed doing so were no longer participating in village affairs in 2011 and I spoke with several people who made it clear that this was because they had been denied access to disaster relief and development projects, while others had privileged access. There may have always been inequities in the distribution of resources in Manzano, but the relative scarcity that came after the disaster made it difficult to maintain relationships in in spite of them. The result was that those who dissented were increasingly excluded, while
others who had been relatively quiet about their marginalization gradually retreated from participating in the community.

The differences between Manzano community mingas and Pusuca mingas were evident in the gossip I consistently noted during mingas in each community in 2011. In Manzano, where dissenting voices were excluded or silenced, there was constant discussion about how much more organized they were than other communities. During every minga in which I participated in 2011, there was talk of how other villages in the parroquia were less organized and how Manzano was so much more deserving because they were organized. In contrast, during the same period in Pusuca, there was a constant din of gossip about other community members. At any given moment during the mingas and meeting in Pusuca, discussions focused on who participated, who did not, who showed up but did not do their share, and who had poor excuses for their absences, etc. While the people of Manzano basically never criticized the participation of their own people, the people of Pusuca did so relentlessly. The ability of Manzano to attract scarce relief and development resources was based largely on their ability to organize, and their organization was built on relationships that the remaining village participants were unwilling to offend. In Pusuca, the ability to attract scarce development resources was similarly based on their ability to organize mingas, but there was a codified institutional regime, not merely personal relationships that had to be maintained.

Elsewhere, social homogeneity has been found to be a key factor in collective action in development programs, while heterogeneity was found to be a deterrent (Krishna and Uphoff 2002:97). In a cross-cultural study of resettlements, Scudder (1985:129) found cooperation was greatest in group-based and homogeneous
resettlements, where resettlers were associated with the same kinship networks, villages, castes, religions, and ethnicities. Furthermore, studies of resettlements in Israel found that impoverishment was greater where resettlements broke up old social groupings and recovery was greater in group-based resettlements that kept these social groupings intact (Sebenius et al. 2005).

Others have formulated an alternative hypothesis to explain the development of collective action based on heterogeneity (Jones 2004; Ruttan 2006, 2008). As mentioned in chapter two, in his study of the cooperatives of small-scale agriculturalists in coastal Ecuador, Jones (2004:13) found that cooperatives that exhibited greater socioeconomic heterogeneity were more successful getting started out than more homogeneous cooperatives. He found that individuals with little experience in cooperatives were more likely to trust those they perceived as wealthy and that they often used wealth as a means of deciding whom to trust when a cooperative was starting up. Jones did not in that manuscript, however, examine other forms of social composition, such as kin and neighbors.

It is worth elaborating for a moment on the finding that community mingas in the traditional community of Manzano are less inclusive and effective than those in the resettlement in Pusuca. What is interesting about this finding is that it contradicts, in many ways, the findings and recommendations of other resettlement and development researchers that homogenous groups with high levels of trust are more likely to cooperate and form reciprocal ties. Although the sample of sites (n=2) is far too small for the generalization of findings based on site characteristics, it is apparent that the more heterogeneous site of Pusuca was more effectively and inclusively organized than the
homogeneous site of Manzano. Both sites had comparable distributions of wealth (as measured by total land owned). Manzano was comprised of people who had been neighbors for generations (with the exception of four households) and there were many kin ties between them. By contrast, the population of Pusuca was much more heterogeneous, as resettlers there were drawn from seven different villages, although the majority (25 of 42 households) was from one village, Pungal de Puela.

To a certain extent, we might characterize this difference as being one of “old village” vs. “new village” behavior. The creation of a new village will entail the formation of new social ties and the dissolution of old ones, but these ties may not be as strong and deep as those in the old village, which might have more pronounced consequences. In the old village, where a sort of social homogeneity prevails and there are traditional and informal processes for dealing with dissent, gossip might tend to be focused outward on other communities, as it was in Manzano. In contrast, gossip in Pusuca was trained inward and focused on the behavior of other community members in ways that were not observed—at least not openly—in Manzano. In light of the finding that Pusuca mingas are more inclusive and effective than those in Manzano, this is important because it suggests that there is something effective about social heterogeneity in facilitating cooperation. Resettlement and development researchers have found that cooperation is best facilitated by high levels of trust (Krishna and Uphoff 2002; Isham and Kahkonen 2002) and keeping homogenous groups together (Cernea 2000, Scudder 1985), but the findings of this study suggest that it is worth exploring the alternatives. Although trust was not a variable considered in this study, in Pusuca, the more socially heterogeneous of the two communities, there was also a marked prevalence of gossip
about the participation of other resettlers, which evinces a low level of trust between neighbors in the community. Heterogeneity, of course, has been considered by other researchers as facilitating cooperation (Ruttan 2008, 2006; Jones 2004), but it is also possible that distrust may have some positive influence on cooperation. Boyd et al. (2010) found that the punishment of dissenters helps sustain cooperation and that this is most effective when the costs of exercising punishment are low. Gossip, they point out, is one of the most common and low-cost forms of punishment in social groups, but it is not generally practiced unless it is accepted by other group members (Boyd et al. 2010:617). Jones (2004) found that economic heterogeneity in Ecuadorian cooperatives was actually positively associated with trust (in the wealthy), but it is possible that social heterogeneity may be negatively associated with trust, thus creating the aperture for gossip that facilitates cooperation by punishing dissenters.

Of course, the effectiveness and inclusiveness of minga organizing in Pusuca was largely dependent on the mitigating influence of the Esquel Foundation. Pusuca had been stewarded by Esquel and had largely prevented internal power relations from dominating and they structured and formalized minga organization. However, this has important implications and consequences as well. My interest in forming this hypothesis was to explore the presence of unequal power in reciprocal exchange relations, not to test the degree to which heterogeneity affected cooperation. However, in this context the two appear to be more closely related than anticipated. Mingas organized by cabildos such as Manzano play key roles in attracting resources from outside organizations and compete with other communities for these scarce resources. They also engage in exclusion and the brokers that connect the community to these outside institutions accumulate appreciably
more resources than do other group members. Their position also enables a fair amount of exclusion that is often invisible to outside organizations who perceive the community as tightly-knit and organized. With that said, there are historical factors worth considering, specifically the extent to which the sustained recruitment of participants for the production of common resources is the source of cabildo power.

Historically, in the clientelist political system of Ecuador, cabildo and minga leaders were uniquely capable of securing outside resources for their communities and this was largely underwritten by their ability to organize their communities, which was recursively facilitated by their ability to secure outside resources. By requiring minga participation as a prerequisite for benefit inclusion, external organizations like Esquel inserted personal benefit into the political economy of the minga, largely usurping cabildo power. Thus, minga participation became predicated not on perpetual communal obligation, but on personal benefit and institutional mandates. Brokers were essentially eliminated from the equation, which not only marginalized the powerful, but inhibited resettlers’ ability to organize and negotiate with outside organizations on their own (albeit clientelist) terms. Finally, where institutions like the Esquel Foundation promoted the poor and marginal to positions of leadership, their efforts unfortunately left wider social structures unchanged. Formerly marginal individuals and households acquired productive resources and political influence in the resettlement and the brokerage model that emerged therefore appears, at least structurally, to be the most inclusive. However, although the creation of new institutions in Pusuca largely avoided the reification of power relations, as Esquel steps back and recalls their community liaison, it is hard not to
get the impression that these unequal power relations will return to the forefront and have
important consequences for future distributions of resources in the resettlement.

**Perspectives on Power and Reciprocity among Disaster-Affected Resettlers**

The objective of this study was to identify the dynamics of power at work in
reciprocal exchange relations in a disaster-affected community and a disaster-induced
resettlement in the Andean highlands of Ecuador. Absent a critical eye to the tension
between practices of cooperation for mutual aid and unequal power relations that inhere
in reciprocal exchange relations and cooperative labor groups like mingas, we are often
left with aseptic concepts of “social support” or “social capital” as well as a latent yet
dogged perception of disaster-affected peoples and resettlers as passive, powerless
victims (Beazley 2009). The findings of this study, however, suggest that a significant
degree of variation in power and resource access within these communities can be
explained by the relationship between reciprocal exchange relations and political power.
We encounter this power as a relational property inherent in social interaction and
derived from the ability to access and allocate relatively scarce resources (Kurtz 2001;
Wolf 1990; Roseberry 1988; Bourdieu 1977), the unequal distribution of risks (Hornborg
2001:1), the ability to make decisions that affect others’ livelihoods (Narotzky 2005:81-
82), and broker the relations between communities and outside institutions (Mosse and
Lewis 2006; Salmen 1987).

In first seeking to identify ways in which reciprocal exchange practices are
endangered in disaster-induced resettlement, we find a dialectic tension between modes
of production (Jones 2010; Watts 2000) in the dynamic between capitalist control of
laborers and their time and the demands of social organization in an agricultural
community. We also observe a tension between the power of state and non-government institutions along with the community to organize the community around scarce development resources. In Manzano, we find an increased awareness of the inequalities in power and access to resources since resettlement and this resulted in the partial polarization and fragmentation of the community. This is consistent with the strategies of actors in unequal power relations to gain “increasingly direct power over local sociopolitical resources, and use such power to gain indirect control over economic activities” (Whitten 1969:234).

There is some evidence that Manzano mingas are forms of reciprocity based on a process of perpetual labor recruitment via repeated practices of conspicuous giving to laborer households, with reciprocity serving as redistribution by periodically facilitating the flow of accumulated wealth and goods from elites to commoners (cf. Whitten 1969). This is consistent with Sahlins’ (1979:276-286) theory of concentric redistribution through reciprocity, where powerful brokers amassed resources from group members and then engaged in public displays of generosity in which they would conspicuously distribute these surpluses in order to gain power, wealth, and prestige. In Manzano, the cabildo president and his allies appealed to shared interests and ideology to organize the group and to legitimize their agendas, thereby transforming their power to control the scarce development resources of the group into an act of generosity (see also Jones 2010; Blanton et al. 1996; Sahlins 1972). In Pusuca, this power is exercised largely by the resettlement agency, the Esquel Foundation. However, in both cases forms of gossip and discourse of communities reinforce the power and the distribution, as these were often based on calls to organize based on shared obligations and needs, a common ideology.
Mosse and Lewis (2006) called attention to the roles of powerful individuals in leadership positions within communities and institutions that set the agendas for decision-making contexts, often translating the needs of one group to the other. Power may have its origins in access to and distribution of scarce resources, but brokerage power in this context was derived from relationships with the state and non-governmental organizations, which we find clearly monopolized by a core group in both sites. In both Manzano and Pusuca, there are key individuals and households who broker ties between groups and institutions and these same people exercise greater influence in decision-making and they and their closest allies do access a greater share of relief and development resources. One key institution, Esquel, has a greater capacity to control access to scarce resources in Pusuca. However, this has the potential to lead to prolonged tension between community and institution over the power to organize and administer the community or the retiring of Esquel and the re-emergence of traditional brokerage roles for powerful landowners. We therefore find that the study of power according to a “state versus community” perspective in resettlement is inadequate (see also Beazley 2009).

The power of the state and non-governmental organizations over communities remains significant in both research sites, but this alone is not sufficient to explain the distribution of resources and political power in the two communities. Instead, results show that mid-level connections between local groups and the state and NGOs have important implications for the production of power and the distribution of scarce development resources, which is consistent with study findings in other development contexts (Knauft 2006; Merry 2006; Lewis and Mosse 2006; Mosse 2005; Elyachar 2002).
Because political negotiation has been likened to a form of reciprocal exchange, underwritten by exclusion and privileged inclusion of actors in exchange relations (Mayer 2002; Spedding 1998; Schweizer 1997), I anticipated that those individuals who exercise power through reciprocal exchange and mingas are more likely than others to serve as brokers and access and control a greater degree of relief and development resources. Study results confirmed this assumption, which goes to question the logic of ostensibly participatory development projects that tend to, however inadvertently, favor the interests of the powerful (Cooke and Kothari 2001:8) and reify existing inequalities (Knauft 2006:415), a topic to be discussed further in the concluding chapter.
CHAPTER SEVEN: CONCLUSION

This study identified several interesting dynamics in the practices of reciprocity, minga cooperation, political power, and resource access and distribution in disaster-affected and resettled communities in highland Ecuador. First, we saw that the practices of reciprocity and minga cooperation were negatively affected by wage labor participation and the residential distance between community members, which was an outcome of the disaster, displacement, and resettlement processes. There were, however, mitigating factors, such as village politics and social divisions and the influence of outside institutions that were associated with variation in these practices as well. Second, we found that minga participation was tightly bound up with participation in reciprocal exchange relations in the traditional community of Manzano, but that minga participation was more strongly associated with institutional strategies and a codified set of community obligations in the resettlement site of Pusuca. Third, we found that political power—specifically, brokerage roles and the ability to influence decision-making—was also strongly associated with participation in reciprocal exchange relations. And finally, we found that the networks of actors most closely related to powerful brokers through reciprocal exchange relations accessed a greater share of aid and development resources in both communities, although there were mitigating factors in each. This study was limited in several key respects, while simultaneously pointing to potentially fruitful opportunities for further research and application. In what follows, I review each of the
limitations of the study, followed by suggestions for further research, and conclude with some recommendations for application that can be derived from this study.

**Limitations of the Current Study**

There were several methodological limitations to this study, which can be generally grouped into three broad categories: research design flaws, intentional limitations of framework, and generalizability. Each of these limitations has its own set of implications for interpreting the results of the current study and for suggesting further research.

*Research Design Flaws*

The design flaws were already discussed briefly in the methodology, results, and discussion chapters, but are worth summarizing here for the purposes of working toward a more robust and reliable framework for the study of reciprocity in disaster-affected communities and resettlement. The first and perhaps most glaring limitation is the lack of data on exchange frequency; that is, data on how often study participants gave or received the items or services in the reciprocity interview. Asking respondents to indicate how often (or how many times in a given time period) they gave or received each item or service in the checklist would have made it possible to analyze the flows of different items and services in different directions in the network. In the dataset compiled from my interviews, I could only analyze the volume (or density) of total exchanges and it is virtually impossible to examine the directional flows of different types of exchanges, as intended, because every exchange category covaries with each other exchange category (see Appendix B). As a result, I was not able to test hypothesis 2 (people who receive more material items than they give are more likely to participate in mingas) or
3a (people who give more material items than they receive are more likely to have political power) as originally intended and I could only test the association of participation (H2) and political power (H3a) with total exchange participation. By only asking respondents whether or not they gave or received each item, I was left with a very limited dataset on reciprocal exchange that did not tell me nearly as much as data on frequency might have.

What is perhaps most frustrating about this lack of data on exchange frequency is that I made a conscious decision not to collect it because I felt it would result in excessive respondent burden and present challenges to completing the study. Although shorter alternatives are sometimes feasible (cf. Jones 2003), network interviews tend to be time-consuming and repetitive and result in a fair amount of burden on respondents who are asked the same questions hundreds of times about nearly every individual in their lives (McCarty et al. 2007). Moreover, the interview did not merely consist of network questions; the second part elicited data on minga participation, inclusion/exclusion, and political power.

Having previously administered interviews similar to the ones I employed in this study in the same study sites two years earlier, I knew that the maximum threshold of time I could require respondents to sit for an interview was roughly 90 minutes. After this point, respondents tended to lose focus or, worse, decline to respond further. Moreover, I knew from experience that fieldworkers easily burn out administering more than two or three of these types of interviews per day. With this in mind, I field tested my interview with six respondents and found the initial interviews took roughly two hours without exchange frequency. I subsequently reduced many of the items in the second part of the
interview to reduce the interview to 90 minutes. I then introduced questions about exchange frequency and tested this with my field assistant and found that the interviews took more than two and a half hours to complete. Because my initial field tests appeared to show sufficient variation in types of exchange, I decided I could eliminate exchange frequency from the interview and expected variation in exchange types to be sufficient. However, the results were not as expected.

Future research eliciting reciprocal exchange data on whole village networks would have to address the issue of exchange frequency and respondent burden because alternative methods of ethnographic observations and key informant interviews are not likely to capture sufficient variation in exchange practices either. Several options are worth considering. Addressing the issue of respondent burden in personal network surveys, McCarty et al. (2007) found that a reliable alternative to eliciting data on all ties in a network was to randomly select a smaller sample of ties from the larger network for each interview. However, this is not likely to yield reliable results in a whole network study because there would be too many gaps in the dataset and random sampling might eliminate key actors from the dataset. Another alternative would be to use response cards—commonly employed in survey research—that list options for respondents to choose from when responding to a repetitive battery of questions (Bernard 2011:244-249; Grosh and Glewwe 2000:125). In this approach, respondents could be given a card that lists the options for frequency of exchange in a given timeframe (e.g., 0, 1, 2-5, 6-10, >10) and instructed to indicate one of these options each time an exchange item was read by the interviewer for each individual in the network. This would greatly reduce the number of times the interviewer would have to present options to respondents and
subsequently reduce the time consumed by the interview. However, even with a simple set of options, this approach might be less effective with respondents with low levels of literacy, as was the case with the current study. Yet another alternative might be to conduct two separate interviews with each respondent at separate times, with one addressing the network exchange questions (including frequency) and the other addressing the other topics of interest (in this study, minga participation, political power, and inclusion/exclusion). This strategy presents challenges of its own, including participant attrition between interviews and the added time spent by researchers locating respondents for multiple interviews, although the latter issue could be at least partially resolved by employing a larger team of researchers to share the burden.

The second flaw in the design of this study was that it failed to capture a representative list of aid and development programs in both sites, although this should be far less challenging to resolve than the reciprocal exchange data issue described above. The problem, as discussed in the previous chapter, was that while I did obtain a relatively reliable set of aid and development programs administered in Manzano, two of the programs listed on the Pusuca interview were not actually administered in Pusuca and were therefore not reliable indicators of program inclusion/exclusion in Pusuca. This was perhaps less of a flaw in design than an error committed in the data collection process. I relied on key informant interviews with villagers in each site and local officials to compile the lists for each community, but field tests were conducted with respondents in neighboring villages and therefore did not initially reveal the problems with the list of programs included in the survey. One simple solution would be to confirm the selection of programs listed with a sub-sample of each study site during the exploratory fieldwork.
phase. Another would be to first collect reliable documentation, when available, on each program in order to confirm the sites and means of its implementation as well as its eligibility criteria. Finally, especially in the context of the two research sites in this study (as well as the many similar neighboring sites not included) where there are many aid and development programs underway at any given time, a better strategy would be to include a greater number of program options. Thankfully, the strategy of participant observation and immersion in community affairs over the course of five months made me aware of the error in the list of options provided in Pusuca and yielded a reliable base of ethnographic data to contextualize and explain the findings in both sites.

Limitations of the Study Framework

This study deliberately focused on a narrow set of issues—the vulnerability of traditional practices and the relationship between reciprocity, cooperation, and political power—and left out a wider range of issues that are critical for a holistic analysis of the recovery from disaster and adaptation to resettlement. This was done for several reasons. First, the core objective of the study was to focus greater critical attention to the power dynamics of reciprocity in disaster and resettlement contexts. My review of the literature on disasters and resettlement found that the topic tended to be uncritically examined in the often value-free and apolitical terms of “social support” and “social capital” and thus warranted further critical attention. Furthermore, this was a doctoral dissertation study conducted with limited time and resources, which inhibited my ability to be more comprehensive in my design. However, future research on this topic should at least collect data on respondent and/or household wellbeing in order to analyze the relationship between reciprocity and livelihoods or recovery. Although I think the present study
successfully captured data on the roles of reciprocity in the politics and distribution of resources in the disaster-affected and resettled sites in the study and this has the potential to inform future studies, I did not capture enough data on how this relates to wellbeing and recovery.

Future studies of reciprocity, power, and resource distribution in disaster-affected and resettled communities should at least include the added factors of wellbeing, though a more holistic approach might go beyond this. There are several ways in which this might be undertaken while maintaining reciprocity as a central variable. One option would be to work with Cernea’s (2000) impoverishment risks and resettlement model, which examines resettlement as the near-simultaneous confluence of eight core risks: landlessness, joblessness, homelessness, marginalization, food insecurity, increased morbidity, loss of access to common property resources, and social disarticulation. This last factor could be operationalized as reciprocity and mutual aid and examined in relation to individual or household access to the resources spelled out in the other eight risks, but others have pointed out the limitations of such a model and the findings of the present study support these critiques. The Cernea model examines resettlement in terms of risks and these risks are produced by a lack of adequate inputs in the policy and planning phase of resettlement (de Wet 2006b:181). The main thrust of this model is that risks can be controlled through the implementation of responsible humanitarian policy measures. But, as de Wet (2006b) points out, all but one of the Cernea risks operate at the individual or household level, with the exception being “social disarticulation,” which obtains instead at the community level. Environmental and wider political economic factors are nowhere to be found in the Cernea model and institutional factors are
curiously bracketed out of the analytical domain as if external and independent of context. The results of the present study and other studies suggest instead that institutional factors, environment, and political economy should be central and not peripheral to analytical models of disasters and resettlement, while taking seriously the risks identified by Cernea and others (cf. Koenig 2001).

As discussed in chapter two, anthropological models of disaster tend to take a broader view of disaster and resettlement processes and to account for the complexities of processes and impacts. Studying the ways in which local forms of reciprocity and political process articulate with the “cascading” economic, health, and environmental antecedents and impacts of disaster and resettlement (pace Whiteford and Tobin 2009) would be a positive step in the direction of accounting for complexity (see also de Wet 2006b). Jones (2010) effectively identifies and operationalizes many of these factors, including environmental vulnerability, political economic responses to environmental change, household livelihood strategies, event qualities, and natural resource dependence and the roles of local and extra-local resources.

The current study highlights how these models have to be integrated with mid-level articulations between local and extra-local processes by examining the modalities of resource exchange, distribution, and control and how these are negotiated by local and extra-local actors and institutions (see also Lewis and Mosse 2006; de Wet 2006b). Resettlement “speeds up the process of local communities’ increased involvement with, and often dependence upon” broader political and economic settings (de Wet 2006b:184). Wider political and administrative structures exercise more direct control over livelihoods, while local institutions and households exercise less (Koenig 2001:17). This
is a primary source of the risk of dependency and impoverishment and often the reason why resettlements fail to achieve sustainability (Gonzalez-Parra and Simon 2008; Cernea 1997, 2003; Goodland 1997; Scudder 1997; Oliver-Smith 1992). Resettlement therefore needs to be studied as an institutional process, involving participation, exclusion, negotiation, resistance, coercion, and cooptation (de Wet 2006b:192-193; Oliver-Smith 2010).

**Generalizability**

Finally, while taking stock of the limitations of the current study, it is important to acknowledge the fact that study results are very specific to the two study sites and their unique characteristics, which therefore make it very difficult to generalize study findings. The present study included only two sites in order to examine the local factors of reciprocity, livelihood strategy, and political processes affecting the distribution of power and resources. The roles of local and extra-local institutions are incorporated as contextual explanatory factors, but the sample of sites (n=2) is not sufficient for external validity. Nonetheless, it is worthwhile to note that several key theoretical assumptions of existing models were not supported by the findings of the present study, which suggests the need for further research because the inconsistencies with existing models were based on noteworthy differences between the two study sites.

**Further Study**

Having already noted the ways in which the design of the present study could be improved both methodologically and conceptually, what remains is to identify more specific agendas for further research. To this end, three particular courses of further study—related and complementary—are particularly relevant for at least brief discussion.
Before proceeding, it is important to recap some of the more salient findings in the current study. First, the study found a complex relationship between the continuity of the traditional practice of mingas and participation in wage labor. Somewhat counter-intuitively, wage labor participation was not a significant factor affecting participation in traditional minga practice in Manzano, but was negatively associated with minga practice in Pusuca, where new institutions were formed to reduce exclusion and increase inclusionary development strategies. Second, while participation in dyadic forms of reciprocity was significantly associated with minga participation in Manzano, it was not a significant factor in Pusuca, which was governed by new institutions. Third, participation in dyadic forms of reciprocity was significantly associated with political power and the distribution of aid and development resources in both sites. And finally, the more heterogeneous of the two sites (Pusuca) had exhibited had greater levels of participation in mingas and dyadic reciprocity and a generally more inclusive distribution of aid and development resources.

Each of the findings summarized above adds an element of complexity to research on Andean forms of reciprocity and research on reciprocity and cooperation in other disaster and resettlement contexts and suggests that much could be learned from a comparative study of a larger sample of sites. First, it appears that minga practice in Ecuador is evolving in many ways and being attached to new state and non-governmental organization strategies and are not reliably consistent with models of mingas as patron-client relations (Whitten 1969), nor are they egalitarian models of social movements (cf. Poole 2009). Furthermore, the novel strategies of incorporating (or coopting) community mingas into state and non-governmental organization strategies have not resulted in
sustainable or consistently equitable distributions of political power and development resources in the study sites either.

This suggests that a comparative study of mingas in larger sample sites (>20 for most statistical purposes) could teach us a great deal about the factors affecting and affected by the variation in their practice. Studying a larger sample of communities and mingas throughout Ecuador could teach us a great deal about how the practice is evolving in different ecological, political economic, and institutional settings. Variable site characteristics could include: indigenous vs. mestizo, highland vs. coastal vs. Amazonian, resettlement vs. non-resettlement, disaster-affected vs. non-disaster, development intervention vs. non-intervention. Such a study could improve understanding about how minga practice varies across a variety of contexts and how it evolves in emerging conditions. Some questions worth exploring include:

- How is minga practice affected by the intervention of different institutions?
- What roles do mingas play in the design and administration of resettlement and development programs?
- Does gender shape the development of mingas differently in administrated communities?
- How are mingas affected by wage labor employment and residential distance?
- What other factors affect variation in minga participation in different sites and contexts?
- To what extent do they operate as forms of reciprocity or forms of cooperation?
- What are the conditions that promote, enable, or inhibit exclusion in minga practice?
How are different forms of participation in mingas related to political power in different groups and contexts?

How is minga participation related to the distribution of access and control of scarce resources?

How is minga participation related to the variation in household wellbeing?

A comparative multi-site study of mingas has the potential to contribute to anthropological knowledge of minga practice in multiple contexts, but would be limited to Andean countries where mingas are practiced (Peru, Ecuador, Colombia, and Bolivia). Much could also be learned by including disaster-affected and resettlement sites in the sample and comparing them to sites not affected by these events and changes. There is also potentially much to be learned from a comparative study of different forms of reciprocity and cooperation in disaster and resettlement contexts in different cultures. For instance, throughout Mexico, there are practices quite similar to mingas, known as tequio (Mixtec), cuatequitl (Nahuatl), fagina (Maya), zhinloawe (Zapotec) (Stephen 2007:57; Orellana Salinas 1973:272), that would make interesting complements to the study of mingas in disaster and resettlement contexts. Similar cross-cultural studies of cooperation have been undertaken in recent years by a group of scholars loosely organized by Samuel Bowles, Herb Gintis, and Robert Boyd (Bowles and Gintis 2011; Boyd and Richerson 2009; Henrich and Henrich 2007). These studies test models derived from dual inheritance theory (the notion that human behavior is explained by the co-evolution of genes and culture) and employ mixed-method strategies including ethnographic observation, surveys, experimental games, and archival research.
The comparative study of reciprocity and cooperation I envision would necessarily require considerable time and resources because survey and interview data alone do not tell us enough about these practices. Here, ethnographic study is invaluable because we need to go beyond interlocutors’ versions of events and practices and to ground data and observations in culturally-specific contexts, not merely survey practices deemed a priori to be “social support” and “mutual aid.” The extent to which individuals and households give and receive social support or mutual aid in reciprocal exchange and cooperation must remain an open question and these practices need to be studied in relation to their implication in the distribution of scarce resources and political power. However, it would be difficult to meet all study objectives with ethnographic data and observations alone, since, as discussed above, it would be difficult to obtain a systematic record of reciprocal exchange practices without survey and interview data. It would therefore be fruitful to continue with a mixed-method design similar to the present study.

**Recommendations for Application**

*How, then do we deal with situations where 'local culture' is oppressive to certain people, where appeals to 'tradition' run contrary to the modernizing impulses of development projects? .... Are we not in danger of swinging from one untenable position (we know best) to an equally untenable and damaging one (they know best)?* Cleaver (2001:47)

As much as reciprocity and cooperation have been found to factor into the dynamics of disaster-affected and resettled communities, it is surprisingly difficult to envision an uncomplicated course of application of the findings of this study. It is a relatively uncomplicated endeavor to privilege the perspectives and vulnerabilities of marginal groups and actors in the course of ethnographic study, but it is something else entirely to identify practical courses of action to resolve these matters. Identifying opportunities and means for the application of anthropological research has always been a
somewhat complicated endeavor, fraught with ethical, theoretical, and practical challenges that have been reviewed extensively elsewhere and need not be reviewed here (Mosse and Lewis 2006; Rylko-Bauer et al. 2006; Kedia and Van Willigen 2005; Olivier de Sardan 2005; Nagengast and Vélez-Ibañez 2004; Cooke and Kothari 2001; Hill and Baba 1999; Hastrup and Elsass 1990). While frequently engaged in policy debates and critiques, anthropologists have been understandably cautious about being implicated in the policies and practices of development institutions whose interpretations and applications of their work are beyond their control. While the American Anthropological Association’s Statements on Ethics clearly states that anthropologists’ primary responsibility is to the people they study, it leaves the matter of conflicting interests among those they study largely unresolved. We are often therefore left to wrestle with the dueling imperatives of speaking for the poor and disempowered (Nagengast and Vélez-Ibañez 2004) and representing the diversity of interests and perspectives encountered in fieldwork (Hastrup and Elsass 1990).

Due in large part to the influence of anthropologists and activists over several decades, culture was increasingly recognized in development policies at state, regional, and global levels in the late 1980s (Knighton 2003:92; Cernea 1996b; Fernandes and Ganguli-Thukral 1989; Partridge 1993; Nayak 1989; Mougeot 1998:57). By the 1990s, this trend began to take the form of participatory development planning policies and practices (Olivier de Sardan 2005; Cooke and Kothari 2001). Olivier de Sardan (2005) characterized these approaches as a form of ideological populism, an uncritical valorization of local knowledge and tradition, which he distinguished from the core anthropological project of methodological populism, the critical analysis of local
practices in search of explanation. This is to say that culture, once considered a bounded and perennial tradition hostile to change and development (Knighton 2003:91), came to be reified as a tool of development. However, development and culture, like tradition and modernity, are not diametrically opposed. As Hastrup and Elsass (1990:306) point out, change is implied in modern anthropological concepts of culture, and development is based on a theory of the world. Yet in spite of the prevalence of fluid and diachronic notions of culture, especially in the resettlement and development contexts, there remains a persistent sense of obligation for cultural survival in applied studies of resettlement, especially in the context of development-induced displacement (cf. Downing and Garcia-Downing 2001). Others studying development-induced resettlement have argued that these programs should be carried out as development programs themselves, going beyond restitution to improving the livelihoods of resettlers (McDonald et al. 2008; Cernea and Mathur 2008; Cernea 1996a). But these recommendations focus on including resettlers as beneficiaries, not on addressing inequalities within resettled groups. In contrast, some anthropologists have been less timid about the role of anthropology in taking sides on human rights issues (cf. Nagengast and Vélez- Ibañez 2004; Endicott and Welsch 2001). Dominguez (2000) and Nagengast (2004) highlight the fact that cultures and social groups everywhere are divided by class, gender, ethnicity, and other factors and culture and tradition are frequently invoked as acts of power, legitimating or challenging one actor’s power over another. According to this school of thought, it is the responsibility of the anthropologist to identify who benefits and loses in the contexts of local and institutional milieus.
While the above concerns and others will likely remain as challenges to the discipline for the foreseeable future, in the interim, individual anthropologists will continue to face these challenges on their own and step out of the debates to offer recommendations for the application of their work. With this in mind, I would like to venture several recommendations based on the findings of this study under three broad yet critical domains of application: (1) economic strategies and productive resources; (2) a place for minga practice in resettlement, including addressing inequality and promoting inclusion, and; (3) a place for heterogeneity in resettlement planning and design. The primary objective these recommendations hold in common is the promotion of inclusive development strategies that improve the wellbeing of disaster-affected and resettled people and the regional focus remains on Ecuador.

_Economic Strategies and Productive Resources_

There are two complementary courses of application worth considering in light of study findings regarding economic strategies and productive resources. The first is that resettlement schemes should include productive resources and economic opportunities for resettlers and, where primary production is the principal economic strategy, productive land should be a priority. Cernea (1996a:310) has advised the World Bank that the core of the development package in resettlement should consist of provisions based on either land-based or employment-based strategies and “the most effective, and relatively less-costly, are the land-based strategies.” The Pusuca resettlement included land for resettlers and therefore created household subsistence and economic opportunities that were consistent with those to which resettlers were accustomed. In contrast, the Penipe resettlement did not include any land, nor were there any employment opportunities in
Penipe. This left 285 households without economic means, and encouraged the return to their lands in the risk zone (now marginally productive due to chronic ashfall) in communities such as Manzano, or else to migrate to cities near and far in search of employment. Both of these strategies took people away from the resettlements for varying lengths of time and often placed them at risk of eviction by the state resettlement agency for failure to regularly occupy their homes. Moreover, a landless population without economic opportunity can become dependent on state or global aid flows, which remove significant populations from both subsistence and market production, at once increasing their vulnerability and undermining sustainable economic growth. Once divorced from their land, they become objects of social control (Lutz and Nonini 2005; Williams 1986) for whom development and resettlement are not unlike the experience of “gradual onset disaster” (Oliver-Smith 1996b:81). Displacement or the expropriation of land removes the main foundation upon which people’s productive systems, commercial activities, and livelihoods are constructed (Cernea 2003). The rural regions of Ecuador continue to focus largely on agricultural production, although many find land unavailable or else struggle to produce on low-productivity land (Sanchez-Paramo 2005:3). Access to land and housing remains marginal in Ecuador (UN-OCHCR 2005) and in highland region landownership is highly concentrated, with 2.6 percent of owners holding 50 percent of all land (World Bank 2003b:398). Resettlement could be an opportunity to address these disparities in land access. Failing to provide these resources compounds the risks and vulnerability faced by resettlers and undermines the recovery process.

The second recommendation is intended as a complement to the first. This is for resettlement and development agencies in Ecuador to develop economic development
strategies that support and accommodate economic strategies beyond agriculture and pastoralism. The current study points to a problem with development strategies in Ecuador that have been discussed by Ecuadorean anthropologists (Martínez 2003b; Bretón 2008; Lanjouw 1999). The problem is that, while rural peoples in Ecuador engage in a range of economic strategies beyond primary production, development strategies in Ecuador—as advanced by such disparate institutions as peasant and indigenous movements, the state, non-governmental organizations, and the World Bank—persist in prioritizing agricultural and pastoral programs over all others (Martínez 2003b; Bretón 2008; Lanjouw 1999). Results from the current study point to the ways in which this fosters hardship and exclusion in the resettlement site of Pusuca. By promoting agricultural and pastoral programs only, households engaging in other economic strategies are often marginalized, not merely missing new opportunities, but losing access to scarce and vital resources. As discussed in the previous chapter, in the case of Pusuca, the problem was not merely that agricultural development schemes were promoted over others, but also that these programs were organized in ways that made it difficult for households engaged in multiple strategies (agriculture, pastoralism, and wage labor) to participate and access the resources of the program. One step in the direction of a more inclusive strategy would be to develop program schedules that are more amenable to people engaging in multiple strategies, such as scheduling multiple days and times for minga participation and taking into account the scheduling constraints of multiple households. Another step in this direction would be to develop a range of development programs, such as educational and job training programs to help people advance in employment or develop small businesses.
The accelerated changes associated with disaster and resettlement have negative consequences for communities’ already destabilized capacities to control their socioeconomic conditions (de Wet 2006b:184). Disaster relief and resettlement programs should seek to establish ways to stabilize these capacities without empowering the divisions that exist in affected communities. Downing and Garcia-Downing (2001:13) make the case that, because benefit distribution may threaten community and cultural survival more than the resettlement project itself, as pre-resettlement divisions are aggravated by the influx of outside resources, benefit distribution should be clearly determined before a project begins. This may be desirable but, as demonstrated in this study, disaster relief and resettlement are not single projects, but many. Resettlement construction and the granting of homes and land are merely the initial steps, after which there are infrastructure, irrigation, agricultural extension programs, and many others that build on the physical and social structures established in resettlements. Benefit distribution, eligibility criteria, and the means of carrying out projects must be negotiated at several stages and adapted based on emerging conditions and lessons learned at each stage, with each new project. A useful approach would be to pilot several projects to support diverse economic strategies as part of disaster recovery and resettlement programs.

*A Place for Minga Practice: Leveling Brokerage Models*

It would be difficult to venture a comprehensive review of the relevant policy applications of many of the findings of this study, particularly since the precise roles of reciprocity and cooperation in resettlement have not been explicitly developed in the literature. There is, nonetheless, room for some general suggestions. The state (however
decentralized; see chapter 3), non-governmental organizations, and social movements have all developed novel ways of incorporating minga practices into meeting development objectives (see chapter 3). The core advantage of this is that extra-local organizations and local communities can work together to achieve development goals by committing local labor to extend the meager financial resources of institutions to produce local projects. It also means that local communities ostensibly have a role in deciding on which projects they want to engage in and how they are carried out. The disadvantages are that communities that are not organized are often not considered for development projects (Bretón 2003; Martínez 2003a) and that the extra-local and local organizations engaged in these practices do not appear to understand one another very well, which inhibits their capacities to be effective in meeting their short and long term goals. Extra-local organizations—such as the state, Samaritan’s Purse, Esquel, and the many other institutions these organizations bring onto contact with their beneficiaries—remain a bit of a mystery to the resettlers and villagers throughout Canton Penipe. Their structure, operations, power, and objectives are often unknown to their local beneficiaries and collaborators, which often makes it difficult for them to make informed decisions about their partnerships and projects.

The culture of mingas is likewise often misunderstood by the extra-local institutions that seek to work with (or co-opt) them for project ends. While it is unclear to what extent the mingas I observed in Manzano, Pusuca, and Penipe are representative of others in the region and throughout Ecuador (see chapters 3, 7, and above), there are certain key features of the mingas I observed that are important for outside organizations to consider. The first is that mingas are predicated on an agricultural mode of production.
They are forms of reciprocity and cooperation forged in the context of the periodic scarcities of labor experienced in small-holder agricultural production. The second is that mingas are organized to produce, maintain, and distribute scarce resources and this can take one of two general forms. One form is the dyadic exchange, whereby minga leaders engage in conspicuous giving to minga laborers in a continuous practice of labor recruitment (cf. Whitten 1969). In this context, the minga leader—or, in the context of development, the development agency—would not be able to recruit mingas without directly providing material resources to minga laborers. The other form is based on the production, maintenance, and distribution of shared resources. These resources include potable water, irrigation, roads, and other forms of community and production infrastructure. These resources require intensive investments of labor to produce and maintain and therefore necessitate the perpetual commitment of resource users, which is primarily achieved through minga organization in rural Ecuador. Third, minga practice is based on forms of brokerage, by which I mean they are organized by key individuals or groups who are uniquely able to channel resources that are locally scarce to group members in order to organize mingas in the first place and the capacity to attract these resources is tightly bound to their ability to organize mingas.

I observed three distinct models of brokerage in Manzano, the Penipe resettlements, and Pusuca. The first can be seen in the mingas organized by cabildos such as Manzano play key roles in attracting resources from outside organizations and compete with other communities for these scarce resources. They also engage in exclusion and the brokers that connect the community to these outside institutions accumulate appreciably more resources than do other group members. Their position also
enables a fair amount of exclusion that is often invisible to outside organizations who perceive the community as tightly-knit and organized. The sustained recruitment of participants for the production of common resources is the source of cabildo power. The second model was observed in the Penipe resettlement, where the resettlement agency, Samaritan’s Purse, organized beneficiary mingas to construct the homes and park in the resettlement. Samaritan’s Purse considered this a resoundingly successful endeavor that capitalized on the traditional strengths of local culture and organizing capacities. However, as noted in chapter three, once the initial resettlement construction was completed, resettlers ceased to organize mingas in Penipe. This can be explained by several factors. The first was that Samaritan’s Purse directly provided resources to displaced disaster victims to organize mingas, but then ceased to provide further resources to encourage further organization (a key component of the dyadic reciprocity model described above). The second was that, lacking land and productive resources, there was simply no resource base around which locals could organize (see chapter 3 for another precedent of this stunted minga model with the United States Peace Corps). Lacking a shared resource base or collective interest (e.g., channeling water to irrigate local lands), there was simply nothing for resettlers to organize around. In this model, brokers are essentially eliminated from the equation, which not only marginalizes the powerful, but inhibits resettlers’ ability to organize and negotiate with outside organizations.

The third model of brokerage was found in Pusuca, where the Esquel Foundation provided productive resources to resettlers and helped to promote the poor and marginal to positions of leadership. The Pusuca resettlement included the three essential features
for minga organization—agricultural production, the production and maintenance of scarce resources (potable water, irrigation, etc.), and a role for brokers in community organization. This leaves us to consider this last factor, the role of the broker. As was seen in Manzano, centralized and historically entrenched brokerage models are associated with different forms of exclusion. Brokers with unique ties to outside resources can set the terms for program inclusion within their communities and these terms may be rooted in historical divisions within the community (e.g., class, ethnicity, gender, politics, etc.).

In Pusuca, the Esquel Foundation was aware of this and attempted to counter these historically-rooted tendencies by promoting the poor and marginal to positions of leadership, in an effort to effectively level the brokerage model. This was accomplished not only by the inclusion of the poor and marginal to leadership, but also by creating multiple opportunities (committees and events) for people to take on leadership roles, thereby avoiding a narrow and centralized brokerage model where merely a few key actors were had access to outside resources. In Pusuca, there were roughly a dozen households that liaised without Esquel and other outside organizations on behalf of the community at any given time. However, the active role that the Esquel Foundation played in creating and maintaining these and their efforts unfortunately leave wider social structures unchanged. Although the creation of new institutions in Pusuca has, only narrowly, avoided the reification of power relations, as Esquel steps back and recalls their local representative, it is difficult not to get the impression that these unequal power relations will return to the forefront and have important consequences for future distributions of resources in the resettlement.
This section could be considered an attempt to create a sort of profile of the mingas encountered in this study in order to inform organizations that would seek to work with them. As discussed, an effective and progressive approach to working through mingas would be to recognize the ways in which they are based on a specific mode of production and organized around the distribution of scarce resources and a brokerage structure that could take several forms. In order to address the inequalities and exclusion that often inhere in these brokerage structures, it makes sense to advocate for the promotion of marginal actors to leadership positions and a general expansion and diversification of brokerage through multiple committees. However, it is both difficult and well beyond the scope of the present study to envision a means to affect the wider social and political economic structures that favor more the more centralized and exclusive forms of brokerage associated with the clientelist political systems of Ecuador. With that said, there may be strategies worth pursuing at a local level.

Communities and institutions would be well-served to move toward more inclusive strategies—not without standards of eligibility, but with standards that are equally accessible for each household. The groups and organizations—local and extra-local—operating in disaster relief and resettlement need to be more thoroughly exposed to one another in order for adaptive policy practice to be effective. Forms of reciprocity and cooperation cannot be uncritically cast as mutually supportive and effective. They need to be studied in the process of project implementation. Local practices and institutions, though often cast as egalitarian, may produce and sustain inequality and exclusion (Cleaver 2001:39). These divisions are often deeply entrenched and cannot be
undone by merely replacing them and establishing new organizations because wider social and political economic structures remain unchanged (Cleaver 2001:44).

When conflicts emerge, Paine (1990:309) says that the responsibility of anthropological advocacy is “to persuade the parties to reflect upon (1) the contexts of their disunity and (2) the contexts in which a front of unity is mutually advantageous.” It is difficult to say to what extent this approach would be effective in sites such as Manzano and Pusuca. Certainly in Pusuca, the Esquel Foundation was able to resolve, however temporarily, many conflicts and divisions within the resettlement and to help foster cooperation for collective benefit. Manzano, by contrast, was more autonomous from outside institutions and tended to set the terms of participation and benefit distribution internally and dissent was often met with exclusion.

The progressive inclusion of previously marginal actors could take several forms and build on the suggestion made above about adapting to multiple livelihood strategies. One option is to promote new production techniques and increased cooperation with outside organizations. Another, demonstrated well in Pusuca, would be to facilitate the inclusion of marginal actors to leadership positions in village committees and cooperatives. Progress could be made by connecting laborers and producers to economic and agricultural advancement training and opportunities. There is of course the potential to create tension by usurping the power of traditional leadership and local divisions, but a general strategy of increasing connections between local actors and opportunities for advancement is a relatively uncomplicated approach that might help overcome persistent divisions and exclusion. If there is any application of a study of inequality in disasters
and resettlements, I suggest it should be to directly confront that inequality; to work with traditional institutions while challenging them on their legacies of inequality.

*A Place for Heterogeneity*

The results of this study suggest that social (e.g., gender, village of origin) and economic (e.g., wealth, class) heterogeneity may contribute to effective and inclusive cooperation among resettlers and these findings are supported by other studies in non-resettlement settings (Ruttan 2008, 2006; Jones 2004). This dynamic is therefore worth considering in resettlement policy and practice in several ways. There is no sense or justice in advocating for the dissolution of displaced communities, but it is certainly possible that resettlement schemes can work to re-establish or maintain community unity while simultaneously fostering the development of moderate social heterogeneity in the new context. This was accomplished in the Pusuca and Penipe resettlements (the latter included resettlers from twelve villages, settled in blocks based on community of origin; see chapter 3), although Penipe lacked the productive resources granted to resettlers in Pusuca (see above and chapter 3). It is therefore possible to maintain some degree of community cohesion while at the same time introducing some social diversity—let us say moderate homogeneity—in the form of new neighbors and community organizations.

The potential advantages could be several. First, by creating a diverse social environment, resettlers could be encouraged to build new relationships, which might ease some of the tensions with prior relations and the demands they often place on one another. Second, new social ties can help connect people to new opportunities outside their usual social groups, broadening their contact with institutions and novel opportunities, which could help to facilitate diverse economic strategies (cf. Hurlbert et
al. 2001; Marx 1990; Granovetter 1973). Fourth, increased social heterogeneity can arguably increase the diversity of needs and constraints that must be addressed by local leaders and institutions, decreasing the likelihood that they will pursue narrow agendas that benefit only a few, such as promoting agricultural development schemes that marginalize households engaged in other economic strategies (more on this below). Finally, as we have seen in Pusuca, a moderate degree of social heterogeneity could create a fertile social environment for community organization and cooperation.

**Conclusion**

Elsewhere, direct compensation principles (e.g., restitution of lost assets) of development and resettlement institutions have been thoroughly critiqued for simply recreating prior standards of living and not extending land rights to the previously landless (Cernea 2003; Downing 2002). The findings of this study support this critique by further highlighting the ways in which unequal access and control of resources inhibits disaster recovery and adaptation to resettlement. However, this study points to opportunities to resolve pre-existing inequalities among disaster-affected and resettled peoples by identifying the ways in which local practices of reciprocity and cooperation facilitate the unequal distribution of resources and political power. Privileging local leadership may foster brokerage structures that reify patron-client relations by granting brokers special access to outside institutions and political power. Ideally, institutions working in resettlement would look to promote the economic and political advancement of previously marginal actors. Participation and consultation tend to be problematic and inadequate because of insufficient attention to the complexities of participation (de Wet 2006b:186-187; Mosse and Lewis 2006; Cooke and Kothari 2001).
While many anthropologists working in disasters and resettlement issues have focused on policy advocacy, I suggest a brokered approach to policy implementation. The position I take here is to envision a role for social scientists in research-based planning in disaster recovery and resettlement. This position is based on the persistent problem that many aspects of resettlement cannot be adequately addressed by rational management procedures and there is a rigidity to the institutional process that frequently makes adaptation and negotiation inflexible (de Wet 2006b:187-193). Rew et al. (2000) coined the term “policy practice” in order to highlight the fact that policies and their implementation are part of the same practice and are negotiated outcomes based on the adaptation to emerging conditions. That is, despite the appearance of rigidity in policy frameworks, there is an often unrecognized flexibility in policy interpretation and implementation. This can be seized upon to factor complexity into policy practice, planning, and development because power is embedded in social and cultural practices and therefore not always obvious (Cooke and Kothari 2001).
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Esta sección de la entrevista trata de sus relaciones con los vecinos de la comunidad y los varios tipos de intercambios y cambios de mano que se han hecho en los últimos 12 meses. Por favor, dígame si usted ha dado a o recibido de la persona, o alguien de su casa, alguna de las siguientes cosas en el año pasado….

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<td>D R</td>
<td>D R</td>
<td>D R</td>
<td>Mas igual menos</td>
<td></td>
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<td>D R</td>
<td>D R</td>
<td>D R</td>
<td>D R</td>
<td>Mas igual menos</td>
<td></td>
</tr>
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<td>D R</td>
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<td>Mas igual menos</td>
<td></td>
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<td>Mas igual menos</td>
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<td>Mas igual menos</td>
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<td>D R</td>
<td>D R</td>
<td>D R</td>
<td>D R</td>
<td>Mas igual menos</td>
<td></td>
</tr>
</tbody>
</table>

¿A quién consultaría de esta comunidad para saber de oportunidades con instituciones? Favor de nombrar un mínimo de 3 personas y un máximo de 5.
Encuesta Cultura de Mingas en Reasentamientos de Afectados por Desastres en Los Andes de Ecuador

Entrevistado ______________________ ID# ___________ Fecha ___________

Datos Sociodemográficos

Primero, le voy a pedir su edad y estado civil.
Indique sexo según observe  Hombre O  Mujer O
¿Cuál es su fecha de nacimiento? Día ______ Mes______ Año ______
¿Cuál es su estado civil? Casado   Viudo   Separado   Divorciado   Nunca Casado
O O     O             O   O

Ahora quisiera preguntarle sobre los habitantes de su casa y sus ocupaciones.
Comenzando con el jefe de la familia, favor de decírme los nombres de los habitantes actuales de su casa con 15 años o más de edad.

<table>
<thead>
<tr>
<th>Nombre Completo</th>
<th>Relac. a Jefe Fam.</th>
<th>Edad</th>
<th>Ocupación 1</th>
<th>Ocupación 2</th>
<th>Empleado/a?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Jefe/a</td>
<td></td>
<td>S O N O</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>S O N O</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>S O N O</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>S O N O</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

¿Cuántos niños menores de 15 años viven en su casa? _______________

Ahora le voy a preguntar de las cosas que tiene usted en la casa. Conteste cuántos tiene de cada artículo.

Artículos En La Casa

<table>
<thead>
<tr>
<th>Artículo</th>
<th>#</th>
<th>Artículo</th>
<th>#</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>Ducha</td>
<td>A15</td>
<td>Grabadoras</td>
</tr>
<tr>
<td>A2</td>
<td>Calentador de Agua Eléctrico o de Gas</td>
<td>A16</td>
<td>Disco Compacto</td>
</tr>
<tr>
<td>A3</td>
<td>Calentador de Agua de Leña</td>
<td>A17</td>
<td>Radio que no sea parte de la grabadora</td>
</tr>
<tr>
<td>A4</td>
<td>Refrigerador</td>
<td>A18</td>
<td>Televisor</td>
</tr>
<tr>
<td>A5</td>
<td>Cocina Eléctrica o de Gas</td>
<td>A19</td>
<td>Bicicleta</td>
</tr>
<tr>
<td>A6</td>
<td>Lavadora de Ropa</td>
<td>A20</td>
<td>Motocicleta</td>
</tr>
<tr>
<td>A7</td>
<td>Máquina de Coser de Pedal o Manual</td>
<td>A21</td>
<td>Autos (carro, camioneta, etc.)</td>
</tr>
<tr>
<td>A8</td>
<td>Máquina de Coser Eléctrica</td>
<td>A22</td>
<td>DVD</td>
</tr>
<tr>
<td>A9</td>
<td>Cafetera Eléctrica</td>
<td>A23</td>
<td>Horno de Microondas</td>
</tr>
<tr>
<td>A10</td>
<td>Licuadora</td>
<td>A24</td>
<td>Video juegos (X-Box, Nintendo, etc.)</td>
</tr>
<tr>
<td>A11</td>
<td>Plancha Eléctrica</td>
<td>A25</td>
<td>Antena parabólica o telecable</td>
</tr>
<tr>
<td>A12</td>
<td>Camas de colchón (sin incluir cuñas)</td>
<td>A26</td>
<td>Computadora</td>
</tr>
<tr>
<td>A13</td>
<td>Sillones o sofás</td>
<td>A27</td>
<td>Teléfono Celular</td>
</tr>
<tr>
<td>A14</td>
<td>Mesas de comedor</td>
<td>A28</td>
<td>Otra Cosa</td>
</tr>
</tbody>
</table>
¿Cultiva Usted (o alguien de su casa)?  **Si O  No O**

¿Qué siembra? ________________________________________________________________

En total, ¿Cuánto terreno siembra usted? ______________________________________

¿Cuánto terreno tiene de pasto? ______________________________________________

¿Dónde está su terreno (ej. Pusuca, Manzano, otro)? ______________________________

Los terrenos que trabaja usted son:

- Propios  O  Arrendados  O
- Familia  O  A Medias  O
- Patrón  O  Otro  O ________

¿Tiene cuantos de los siguientes animales?

- ___ ganado
- ___ caballos/mulas/burros
- ___ chanchos
- ___ gallinas
- ___ cuyes
- ___ conejos
- ___ cabras/ovejas
- ___ otros

- O Ninguno
- O NR

¿Dónde tiene sus animales (ej. Pusuca, Manzano, otro)? ____________________________

¿Vende sus cultivos?  **Si O  No O**

¿Cuáles?

________________________________________________________________________

- O Ninguno
- O NR

¿Donde?  Penipe  O  Riobamba  O  Otro  O

¿Directo al mercado?  O  ¿A mediantes?  O  U otro?  O  ________________

Ahora quiero preguntarle sobre las mingas en su comunidad, como funcionan, y como participa la gente.

**Participación En Mingas**

**P1** Primero, ¿me puede describir en breve que es una minga y como la hacen en su comunidad?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
Ahora quiero preguntarle sobre participación en las mingas.

P2 ¿Con que frecuencia trabaja usted o alguien de su casa en las mingas?

P2a ¿Usted puede indicarme las razones por eso?

P3 ¿Con que frecuencia paga peones para trabajar en su vez en las mingas?

P3a ¿Usted puede indicarme las razones por eso?

Por favor, dígame quien trabaja más en las mingas……..

P4 A) Dirigentes y líderes comunitarios

Por favor, dígame que tan cierta son las siguientes frases sobre participación en las mingas.

P5 Ciertas personas o familias trabajan más que otras en las mingas

P5a ¿Cuáles? ¿Por qué?

P6 Ciertas personas o familias trabajan menos que otras en las mingas

P6a ¿Cuáles? ¿Por qué?

P7 La repartición de trabajo a las personas en las mingas es justo

P8 La repartición de trabajo a las personas en las mingas es igual a cada persona

Beneficios de Participación

Ahora, quiero preguntarle sobre los beneficios de las mingas y de participación en las mingas.

B1 ¿Hay beneficios que saca la comunidad de las mingas o no? ¿Cuáles?

B2 ¿Hay beneficios que sacan personas y familias de las mingas o no? ¿Cuáles?

B3 ¿Se ha beneficiado usted o su familia de las mingas? ¿Cómo?
Ahora quiero preguntarle sobre los beneficios de las mingas. Por favor, digame quienes sacan más beneficios de las mingas...

**B4**
- A) Hombres
- O B) Mujeres
- O C) Hombres y mujeres igualmente

**B5**
- A) Mayores
- O B) Jóvenes
- O C) Mayores y jóvenes igualmente

**B6**
- A) Madres solteras
- O B) Madres casadas
- O C) Madres solteras y casadas igualmente

**B7**
- A) Personas con más recursos
- O B) Personas con menos recursos
- O C) No importa los recursos de la gente

**B8**
- A) Los que tienen cultivos y/o animales en la comunidad
- O B) Los que no tienen cultivos y/o animales en la comunidad
- O C) No importa si tiene cultivos o animales aquí

**B9**
- A) Dirigentes y líderes comunitarios
- O B) La gente común de la comunidad
- O C) Dirigentes, líderes y la gente común igualmente

**B10**
- A) Los que viven en la comunidad la mayoría del tiempo
- O B) Los que casi no viven en la comunidad
- O C) No importa si vive aquí o no

Por favor, dígame que tan cierta son las siguientes frases sobre los beneficios de las mingas.

**B11**
- Ciertas personas o familias sacan más beneficios que otras de las mingas
- Nada 0  Poco 0  Muy 0

**B11a**
- ¿Cuáles? ¿Por qué?

**B12**
- Ciertas personas o familias sacan menos beneficios que otras de las mingas
- Nada 0  Poco 0  Muy 0

**B12a**
- ¿Cuáles? ¿Por qué?

**B13**
- Los beneficios que sacan la gente de las mingas depende de su participación en las mingas
- Nada 0  Poco 0  Muy 0

**B14**
- Los que casi no trabajan en las mingas sacan los mismos beneficios que los que trabajan regularmente
- Nada 0  Poco 0  Muy 0

**B15**
- Los que trabajan más en las mingas sacan más beneficios de las mingas
- Nada 0  Poco 0  Muy 0

**B16**
- La repartición de beneficios de las mingas es justo
- Nada 0  Poco 0  Muy 0

**B17**
- La repartición de beneficios de las mingas es igual a cada persona
- Nada 0  Poco 0  Muy 0

**B18**
- Cada persona o familia saca los mismos beneficios de las mingas
- Nada 0  Poco 0  Muy 0
Toma De Decisiones

Ahora quiero preguntarle sobre el proceso de tomar decisiones en la comunidad.

D1 ¿Me puede describir brevemente que es el proceso de tomar decisiones en la comunidad?

D2 Si hubiera la necesidad de tomar una decisión en un proyecto de desarrollo en esta comunidad, ¿cómo lo harían aquí?
A) Dirigentes deciden e informan a los demás O  B) Dirigentes piden sugerencias a la comunidad y después deciden entre ellos O  C) Dirigentes y la comunidad toman decisiones juntos en una sesión O  D) Otro (especifique) O ___________________________________________

Por favor, dígame que tan cierta son las siguientes frases sobre la toma de decisiones en la comunidad.

D3 La toma de decisiones representa los intereses y necesidades de la mayoría de la comunidad
  Nada O Poco O Muy O

D4 Los intereses y necesidades de usted y su familia están tomados en cuenta en proyectos comunitarios
  Nada O Poco O Muy O

D5 Hay ciertas personas o familias cuyos intereses y necesidades no están tomados en cuenta en proyectos
  Nada O Poco O Muy O

D5a ¿Cuáles personas o familias? ¿Por qué?

D6 Hay ciertas personas que choquen con otros en el proceso de tomar decisiones en la comunidad
  Nada O Poco O Muy O

D6a ¿Cuáles personas? ¿Por qué?

Quién tiene más influencia en la toma de decisiones en el grupo…

D7 A) Hombres O B) Mujeres O C) Hombres y mujeres igualmente
D8 A) Mayores O B) Jóvenes O C) Mayores y jóvenes igualmente
D9 A) Madres solteras O B) Madres casadas O C) Madres solteras y casadas igualmente
D10 A) Personas con más recursos O B) Personas con menos recursos O C) No importa los recursos de la gente
D11 A) Los que tienen cultivos y/o animales en la comunidad O B) Los que no tienen cultivos y/o animales en la comunidad O C) No importa si tiene cultivos o animales aquí
D12 A) Dirigentes y líderes comunitarios O B) La gente común de la comunidad O C) Dirigentes, líderes y la gente común igualmente
D13 A) Los que viven en la comunidad la mayoría del tiempo O B) Los que casi no viven en la comunidad O C) No importa si vive aquí o no
Por favor, dígame que tan cierta son las siguientes frases sobre el proceso de tomar decisiones en la comunidad.

<table>
<thead>
<tr>
<th>D14</th>
<th>Ciertas personas o familias tienen más influencia que otras en la toma de decisiones</th>
<th>Nada</th>
<th>Poco</th>
<th>Muy</th>
</tr>
</thead>
<tbody>
<tr>
<td>D14a</td>
<td>¿Cuáles? ¿Por qué?</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>D15</td>
<td>Los que participan más en las mingas tienen más influencia en la toma de decisiones</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>D16</td>
<td>Los que participan menos en las mingas tienen la misma influencia que los que participan más</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>D17</td>
<td>La influencia en la toma de decisiones no depende de la participación en mingas</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>D18</td>
<td>La influencia en la toma de decisiones depende del interés de involucrarse en el proceso</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>D19</td>
<td>La influencia de la gente en la toma de decisiones en la comunidad es justo</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

**Beneficios de fundaciones e instituciones**

Ahora quiero preguntarle sobre los beneficios y proyectos de las fundaciones e instituciones que han realizado proyectos y campañas aquí. Por favor, dígame que tan ciertas son las siguientes frases sobre beneficios y proyectos aquí en la comunidad.

<table>
<thead>
<tr>
<th>R1</th>
<th>La gente que participan más en las mingas reciben más beneficios de las fundaciones e instituciones</th>
<th>Nada</th>
<th>Poco</th>
<th>Muy</th>
</tr>
</thead>
<tbody>
<tr>
<td>R2</td>
<td>Los que casi no trabajan en las mingas sacan los mismos beneficios que los que trabajan regularmente</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>R3</td>
<td>Los dirigentes y líderes sacan más beneficios de las fundaciones e instituciones que los demás</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>R4</td>
<td>La repartición de beneficios de las fundaciones e instituciones es generalmente justo</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>R5</td>
<td>Cada casa saca los mismos beneficios de las fundaciones e instituciones</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>
Ahora le voy a preguntar si usted o alguien de su casa se ha beneficiado o ha sido incluido en alguna de las siguientes campañas o proyectos en su comunidad desde las erupciones hasta hoy en día.

<table>
<thead>
<tr>
<th></th>
<th>¿Usted fue incluido?</th>
<th>¿Por qué sí/no?</th>
</tr>
</thead>
<tbody>
<tr>
<td>R6</td>
<td>Raciones de MIES</td>
<td>S O N O</td>
</tr>
<tr>
<td>R7</td>
<td>Alimentos para animales de MAGAP</td>
<td>S O N O</td>
</tr>
<tr>
<td>R8</td>
<td>Tractor de la Junta Parroquial de Puela</td>
<td>S O N O</td>
</tr>
<tr>
<td>R10</td>
<td>Capacitaciones de Producción ¿Institución?</td>
<td>S O N O</td>
</tr>
<tr>
<td>R11</td>
<td>¿Otro proyecto o beneficio?</td>
<td>S O N O</td>
</tr>
</tbody>
</table>

Observaciones

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
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________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
## APPENDIX B: EXCHANGE CORRELATION MATRIX

Table 11. Manzano Correlation Matrix of Exchange Categories

<table>
<thead>
<tr>
<th></th>
<th>Food</th>
<th>Produce</th>
<th>Money</th>
<th>Tools</th>
<th>Randimpa</th>
<th>Peon</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>In</td>
<td>Out</td>
<td>In</td>
<td>Out</td>
<td>In</td>
<td>Out</td>
</tr>
<tr>
<td>In-Degree Food</td>
<td>r</td>
<td>.874</td>
<td>.654</td>
<td>.666</td>
<td>.557</td>
<td>.760</td>
</tr>
<tr>
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<td>p</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>Out-Degree Food</td>
<td>r</td>
<td>.874</td>
<td>1</td>
<td>.590</td>
<td>.631</td>
<td>.479</td>
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<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>In-Degree Produce</td>
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<td>.935</td>
<td>.561</td>
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<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>Out-Degree Produce</td>
<td>r</td>
<td>.666</td>
<td>.631</td>
<td>.935</td>
<td>1</td>
<td>.515</td>
</tr>
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<td>p</td>
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<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>In-Degree Money</td>
<td>r</td>
<td>.557</td>
<td>.479</td>
<td>.561</td>
<td>.515</td>
<td>1</td>
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<td>p</td>
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<td>.000</td>
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</tr>
<tr>
<td>Out-Degree Money</td>
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<td>.493</td>
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<td>.526</td>
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<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>In-Degree Tools</td>
<td>r</td>
<td>.686</td>
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<td>.620</td>
<td>.621</td>
<td>.528</td>
</tr>
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<td>.000</td>
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<tr>
<td>Out-Degree Tools</td>
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<td>.000</td>
<td>.000</td>
<td>.001</td>
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<tr>
<td>In-Degree Randimpa</td>
<td>r</td>
<td>.699</td>
<td>.635</td>
<td>.554</td>
<td>.550</td>
<td>.538</td>
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<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>Out-Degree Randimpa</td>
<td>r</td>
<td>.699</td>
<td>.635</td>
<td>.554</td>
<td>.550</td>
<td>.538</td>
</tr>
<tr>
<td></td>
<td>p</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>In-Degree Peon</td>
<td>r</td>
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<td>.592</td>
<td>.275</td>
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<td>.000</td>
<td>.049</td>
<td>.011</td>
<td>.005</td>
</tr>
<tr>
<td>Out-Degree Peon</td>
<td>r</td>
<td>.658</td>
<td>.442</td>
<td>.462</td>
<td>.484</td>
<td>.496</td>
</tr>
<tr>
<td></td>
<td>p</td>
<td>.000</td>
<td>.001</td>
<td>.001</td>
<td>.000</td>
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</tr>
</tbody>
</table>
### Table 12. Pusuca Correlation Matrix of Exchange Categories

<table>
<thead>
<tr>
<th></th>
<th>Food</th>
<th>Produce</th>
<th>Money</th>
<th>Tools</th>
<th>Randimpa</th>
<th>Peon</th>
</tr>
</thead>
<tbody>
<tr>
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May 24, 2011

Albert Faas
Anthropology

RE: Exempt Certification for IRB#: Pro00004409
Title: Reciprocity and Political Power in Disaster-Induced Resettlements in Andean Ecuador

Dear Albert Faas:

On 5/24/2011, the Institutional Review Board (IRB) determined that your research meets USF requirements and Federal Exemption criteria as outlined in the federal regulations at 45CFR46.101(b):

(2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: (i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

As the principal investigator for this study, it is your responsibility to ensure that this research is conducted as outlined in your application and consistent with the ethical principles outlined in the Belmont Report and with USF IRB policies and procedures. Please note that changes to this protocol may disqualify it from exempt status. Please note that you are responsible for notifying the IRB prior to implementing any changes to the currently approved protocol.
The Institutional Review Board will maintain your exemption application for a period of five years from the date of this letter or for three years after a Final Progress Report is received, whichever is longer. If you wish to continue this protocol beyond five years, you will need to submit a continuing review application at least 60 days prior to the exemption expiration date. Should you complete this study prior to the end of the five-year period, you must submit a request to close the study.

We appreciate your dedication to the ethical conduct of human subject research at the University of South Florida and your continued commitment to human research protections. If you have any questions regarding this matter, please call 813-974-5638.

Sincerely,

John Schinka, PhD
Chairperson
USF Institutional Review Board

Cc: Various Menzel, CCRP, USF IRB Professional Staff