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ELITE CAPTURE, FREE RIDING, AND PROJECT DESIGN: A CASE STUDY OF A COMMUNITY-DRIVEN DEVELOPMENT PROJECT IN CEARÁ, BRAZIL

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**ELITE CAPTURE, FREE RIDING, AND PROJECT
DESIGN: A CASE STUDY OF A COMMUNITY-DRIVEN
DEVELOPMENT PROJECT IN CEARÁ, BRAZIL**

A Dissertation Presented

by

JESSICA CARRICK-HAGENBARTH

Submitted to the Graduate School of the
University of Massachusetts Amherst in partial fulfillment
of the requirements for the degree of

DOCTOR OF PHILOSOPHY

September 2016

Economics

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JESSICA CARRICK-HAGENBARTH

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DEDICATION

To Grandma Peg, for her belief in education and her belief in me.

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I have many people to thank for their support through my dissertation project. Mohan Rao's classes, discussion and service as chair to this dissertation helped me to understand what the study of development could be. This dissertation would not have been possible without his guidance. Mwangi wa Githinji's creativity and insights have continually prompted me to be a better academic. Krista Harper generously guided me through my qualitative study design.

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ABSTRACT

ELITE CAPTURE, FREE RIDING, AND PROJECT DESIGN: A CASE STUDY OF A COMMUNITY-DRIVEN DEVELOPMENT PROJECT IN CEARÁ, BRAZIL

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This dissertation explores the successes and failures of a community-driven development project, São José Agrário (SJA), conducted in Northeastern Brazil. The project was co-funded by the World Bank and the State of Ceará and co-directed by a social movement (the Landless Workers Movement, MST) and the State of Ceará. The dissertation employs a mixed methods approach based on eight case studies, a census survey of six communities, and interviews with a wide variety of actors connected to the project.

I address the problem of elite capture, either by non-targeted communities or by an elite within the targeted communities disproportionately benefiting from projects. Case study communities met project targeting criteria. I found no evidence of elite capture of project funds or subproject benefits in the case studies. I then evaluate the

free rider problem. The settlers, for the most part, overcame problems of free riding in both their collective work and in the SJA subprojects. Solving the challenges of free riding depended on the community and collective work institutions, such as clear, enforceable rules, monitoring, and graduated sanctions. Accompanying groups, such as the Landless Workers' Movement, agricultural workers' unions, local and state governments, and technical agencies assisted in preventing or resolving free riding problems.

I found that even when the problems of elite capture and free riding were avoided, three of the eight subprojects I studied had failed, and one had been suspended for two years. I trace the source of subproject failure to problems of subproject design. First, subprojects required a greater skill set and knowledge base than the participants had. Power differentials between the participants and the private actors created dependency and allowed for participants to be taken advantage of rather than creating empowerment. Second, the duration of technical assistance for productive subprojects was too short and private technical agencies sometimes provided low-quality subprojects. Third, participants had little ability to accurately forecast their costs and benefits of subproject participation, resulting in subproject attrition.

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LIST OF ABBREVIATIONS

CA	Community Association
CE	Ceará
CBD	Community-Based Development
CDD	Community-Driven Development
CPR	Common Pool Resource
EMATERCE	Ceará Technical Assistance and Rural Extension Business (Empresa de Assistência Técnica e Extensão Rural do Ceará)
FETRAECE	Federation of Agricultural Workers in the State of Ceará (Federação dos Trabalhadores e Trabalhadoras na Agricultura do Estado do Ceará)
IDACE	Institute of Agrarian Development in Ceará (Instituto de Desenvolvimento Agrário do Ceará)
INCRA	National Institute of Colonization and Agrarian Reform (Instituto Nacional de Colonização e Reforma Agrária)
MST	Landless Workers' Movement (Movimento dos Trabalhadores Rurais Sem Terra)
NGO	Non-governmental Organization
NRDP	Northeast Rural Development Program
O&M	Operations and Maintenance
SDA	Department of Agrarian Development (SDA - Secretaria de Desenvolvimento Agrário)
SJA	São José Agrário
SJI	São José I
SJII	São José II
SJIII	São José III
STU	State Technical Unit
UNDP	United Nations Human Development Programme
WB	World Bank

CHAPTER 1

INTRODUCTION

1.1 Introduction

Participatory development is the active involvement of participants in the development process. The participatory approach gained popularity over the 1990s and 2000s. Participatory development stresses bottom-up rather than top-down approaches, prioritizes the goal of empowerment, and gives priority to local or indigenous knowledge (Henkel and Stirrat, 2001). Participatory development projects have been widely adopted in many forms by the World Bank (WB), by national governments, by other international development institutions, and by international non-governmental organizations (Brett, 2003).

Some civil society, social movements, and non-governmental organizations (NGOs) have adopted and developed a participatory approach as a way to attempt to alleviate poverty, in reaction to the reduction in state spending and provision of social safety nets in the 1970s and 1980s. The neoliberal model welcomed the cost savings and decentralization of moving spending of social welfare from the state level to the individual, civil society, and NGO level (Mayo and Craig, 1995). Additionally, decentralization of political power, a common aspect of participatory approaches, was harmonious with the framework of international institutions concerned with corruption and state failures. International institutions also embraced the emphasis on empowerment and local indigenous knowledge, primarily in the context of how to monetize that knowledge into commercial ventures (Finger and Schuler, 2004).

Participatory development encompasses a broad range of approaches, including those that confront power inequities, and those that invite communities into the design and implementation of development projects. I call these two classes of approaches radical participatory development and project-based participatory development.¹ Over the 1980s and 1990s, frameworks such as Robert Chambers' participatory rural appraisal method, as well as the analyses of Cornwall, Cernea, and Cohen and Uphoff gave weight to the practice of project-based participatory development by international institutions, particularly in rural areas (Cohen and Uphoff, 1980; Chambers, 1983, 1999; Cornwall, 2000; Cernea, 1985).

The World Bank developed a project-based participatory development approach it named community-driven development (CDD). This approach gives community groups and local governments control over planning decisions and investment resources. In general, community groups will come together around a goal; they will then apply for funds by submitting a proposal from the those administering the CDD project. Once they receive the funds they will assist in implementing the subproject and will be responsible for subproject maintenance. The World Bank has dedicated a significant amount of money to this approach, \$85 billion from 2002 to 2012 (Mansuri and Rao, 2012). This approach to participatory development posits that community control of development projects and funds creates efficient outcomes and empowered communities, while reducing corruption (Coirolo and Lammert, 2009; Chambers, 1983; Craig and Mayo, 1995; World Bank Operations Evaluation Department, 2005).

While for many, the model of CDD is attractive; its application has encountered serious obstacles (Cooke, 2001). The success of community-driven development depends on collective action: the ability of participants to organize themselves around

¹In Chapter 2 I go into more depth regarding this classification.

a specific goal, to decide on a particular subproject, and to work and maintain the subproject collaboratively. Thus, criticisms of CDD tend to center on typical causes of collective action failure: the elite capture of funds, clientelism (in which politicians exchange subprojects for votes), and free-riding by members in the community.

My study explores how the goal of community involvement, input, and control over a local-level development process played out in the specific institutional context of the World Bank approach to participatory development (community-driven development) deemed effective in the Brazilian Northeast. While this dissertation is primarily studying a project-based approach to participatory development, the actual project itself somewhat uniquely incorporates aspects of the radical approach to participatory development as well. This CDD project is called São José Agrário (SJA). It is a subcomponent of a larger CDD project, named São José II (SJII) locally, and named the Rural Poverty Reduction Project by the World Bank. This project provided grants for small-scale infrastructure and productive subprojects in agrarian settlements.² Infrastructure subprojects included fences and reservoirs. These subprojects required a significant amount of intensive labor over a short period, generally some months. Productive subprojects included irrigation and beekeeping. Such subprojects require long-term participation and labor as long as the subproject exists, generally years.

When, in 2007, the state of Ceará received additional financing for their São José II Project (also known as the Rural Poverty Reduction Project), a grassroots social movement occupied the state offices and demanded access to those funds for their affiliated communities. This grassroots social movement was called the Landless Workers Movement (Movimento dos Trabalhadores Rurais Sem Terra, MST) and the funds they gained access to became the São José Agrário project. Working together

²Project refers to the entire funds from both the World Bank and the State government dedicated to the community-driven development program at the state level, as well as the spin-off program São José Agrário that dedicated funds only to agrarian settlements. Subprojects refer to the funds allocated to each participating group.

the MST and the project state technical unit provided funds to communities, assisted them in planning subprojects, and provided some accompaniment.

This dissertation is based on eight case studies, a census survey of six communities, and interviews with a wide variety of actors connected to São José Agrário. The purpose was to evaluate reasons for the success and failure of the subprojects in my eight case studies. I inquired whether participants had experienced problems with clientelism, elite capture, or free riding. Elite capture occurs when the subproject or the subproject funds are controlled by an elite, often resulting in the funds or the subproject benefits not reaching those for whom they are intended. Elite capture can occur between communities or within a community. In the context of the Brazilian Northeast, elite capture that occurred when a non-targeted community received a subproject, instead of a targeted community, was often a result of patron-client relationships (clientelism). Free riding is a well-known problem which leads to the under-provision of participation (often in terms of providing labor to the subproject) or other inputs key for subproject success. I found that communities had mostly overcome these problems of collective action. Yet, three of the subprojects had failed outright and one was on hold. I examined the ways in which the communities were able to solve traditional problems of collective action and I identified problems that did lead to project failure.

Chapter one provides the introduction, background and methods. Chapter two presents a literature review addressing types of participatory development and the theory and evidence for elite capture and free riding in the context of community-driven development.

In chapter three, I deal with the problem of elite capture. I explore first if clientelism resulted in non-targeted communities receiving subprojects. Secondly, I evaluated the differences in income, education, and background in the case study communities. My case studies, which encompasses all cases meeting a set of criteria (explained

below), showed no signs that non-targeted communities received subprojects and, as such, showed no signs of clientelism. Within the community, elite capture could have occurred through differences in power, along the lines of income, education, and background. I found that there were significant differences in income, rooted in the availability of off settlement work and pensions. Educational levels also varied to a great extent with age for those over the age of eighteen. This was a result of the state funding of public education, which penetrated farther into rural areas, and conditional welfare payments, in which children had to be enrolled in school to be accessed. These two factors lowered the opportunity cost of attending school and led to higher educational attainment for the younger generations. Backgrounds, in terms of previous work and origin of birth, were very similar for community members. Despite differences in income and educational levels, I found no evidence of elite capture of project funds or subproject benefits in the case studies.

In chapter four, I address the free rider problem. While there is an abundance of literature exploring free riding in the context of common pool resources, there has been little analysis of free riding in CDD projects. This may be because, in the past, many CDD projects have been dedicated to infrastructure. Once built, infrastructure subprojects require minimal labor or monetary input from participants. Currently, however, CDD projects are moving toward new livelihood activities (productive subprojects). As Mansuri and Rao note, many of the subprojects are nontraditional, which typically means they are new to the communities. “Such projects tend to encompass a broad array of productive activities, including crop production and *non-traditional* agricultural activities, such as aquaculture and medicinal plants, livestock, agro-forestry, fishing, and fish farming” (Mansuri and Rao, 2012, emphasis mine, 213). These livelihood projects require ongoing labor and occasionally monetary inputs. In such cases, free riding would likely present as shirking or failure to contribute money.

I identify the characteristics of free riding and the institutions used to solve free riding problems. Free riding presented challenges to settlement collective work and, to a lesser extent the SJA subprojects. The settlers, for the most part, overcame problems of free riding in both their collective work and in the SJA subprojects. Solving the challenges of free riding depended on the institutions surrounding collective work in the community, such as clear, enforceable rules, monitoring, and graduated sanctions. In addition, accompanying groups, such as the Landless Workers' Movement, agricultural workers' unions, local and state governments, and technical agencies assisted in preventing or resolving free riding problems. I found that the agrarian settlements had robust institutions to deal with free riding but that the SJA subprojects did not. As CDD projects move toward funding a greater percentage of productive subprojects and these subprojects become more successful, free riding may begin to play a larger role. Under such conditions, the lack of robust institutions to deal with free riding in CDD projects may lead to subproject conflict and failure.

I found that even when the problems of elite capture and free-riding were avoided, three of the eight subprojects I studied had failed, and one had been suspended for two years. The remaining four were ongoing during my visits over 2012-2013, but none had directly increased participants' income, although two may have increased participants' production indirectly and one may potentially do so in the future. If collective action failures were overcome, these results begged the question: why were almost half the subprojects failing?

In my fifth chapter, I trace the source of project failure to problems of subproject design. First, subprojects required a greater skill set and knowledge base than the participants had. It was expected that the participants would be empowered via their participation in the subprojects via learning by doing, and this would compensate for a lack of skill or resources. The subproject design required that the participants interact with a variety of private actors (technical agencies, suppliers of inputs, middlemen,

as well as gain access to private markets and transport their goods to the market). Many of these private actors have greater income, education, and knowledge about their specific business. Consequently, the subproject participants entered into the relationships at a disadvantage, being less-skilled, less-knowledgeable, less-educated, and coming from low-incomes and rural areas. The power differential between the participants and the private actors created dependency and allowed for them to be taken advantage of rather than creating empowerment.

Second, subprojects often depended on private technical agencies instead of public technical agencies. The private technical agencies, for the reasons mentioned above, sometimes provided low-quality subprojects which failed. An additional reason for subproject failure is that technical agencies under-provided technical assistance. This was in part due to the low quantity of funds set aside in the subproject for technical assistance and, in part because it was an easy place for the technical agencies to cut costs. Communities needed a greater duration of technical assistance and a better quality of technical assistance.

Third, the SJA project (and the greater SJII project) assumed participants could make an accurate initial cost-benefit decision of whether or not to participate in the subprojects. Yet, these subprojects often took on new crops and techniques of production, previously unknown to the participants. As a result, the participants had little ability to accurately forecast their costs and benefits. They relied on advice and opinions from the state government technicians, the Landless Workers Movement, community leaders, other participants, and largely on their own intuition. New information or shocks to initial subproject costs and benefits caused individuals to reevaluate their participation decision resulting in attrition from the subprojects. The World Bank appeared to identify this attrition, at least partially, as the result of moral hazard.

In the appendix, I present a simple model of how this participation decision may be revisited and how relatively small numbers of attrition from the subprojects can result in complete subproject failure.

This dissertation provides a unique case study of a community-driven development project funded by the World Bank that was co-directed by a social movement (the Landless Workers Movement, MST) and the State of Ceará's Department of Agrarian Development. This case study is particularly interesting because it brings together characteristics of a top-down project-oriented approach (the São José Agrário CDD Project) to participatory development with a more bottom-up radical approach (the demand of funds by the MST communities) to participatory development. In doing so, the case studies in my sample overcame some of the traditionally identified problems of collective action in CDD projects. I demonstrated how accompaniment by a social movement can make community-driven development projects more effective by mitigating elite capture in general and clientelism in particular. Second, I provided examples of institutional solutions to collective action problems. Third, I documented case studies and provide an alternative explanation for the failure of projects, located in project design. Lastly, I showed how misdiagnosing the problem results in design flaws that will prevent the project from reaching those most in need.

1.2 Agriculture in Ceará, Brazil

My study is located in Ceará, a state located in northeastern of Brazil. I choose Ceará because it has a relatively long history of CDD projects, beginning with pilot projects in 1985 (Coirolo and Lammert, 2009), providing time for these projects to develop and mature. Seven of my eight case studies are located in the municipalities of Canindé and Quixeramobim — both host to a semi-arid microclimate. I also included one settlement in Itapipoca along the coast. I chose to concentrate my study on cases

in the sertão because of its history as an area of concentrated poverty and because of the difficult conditions under which to farm.

Ceará was and continues to be an agricultural region with high levels of income and land inequality. The land Gini increased from the 1980 level of 0.77 to 0.86 in 2006 (de Medeiros et al., 2012). Income inequality has decreased, largely thanks to *Bolsa Família*, the nation-wide concessional welfare program in Brazil. The income Gini for the state of Ceará decreased from 0.63 in 2000 to 0.57 in 2010 (Governo do Estado do Ceara, 2011). Around 43% of workers in Ceará are employed in the agricultural sector (Chimeli et al., 2002) and around 92% of family agriculturalists do not have access to irrigation and, as such, depend entirely on rainfall (Lemos et al., 2002).

The *sertão* is a semi-arid environment. Canindé saw 270.5 mm of rain in 2012 and 372.1 mm of rain in 2013, in which normal average is around 674 mm (Fundacao Cearense de Meterologia e Recursos Hidricos, 2016). Quixeramobim saw 291.4 mm of rain in 2012 and 620.8 mm of rain in 2013, in which the normal average is around 704 mm (Fundacao Cearense de Meterologia e Recursos Hidricos, 2016). Rainfall occurs over a short season from January to April and tends to be erratic with frequent droughts making subsistence production a risky endeavor.

Large landowners engage in livestock production, primarily cattle ranching (Leite et al., 2004). Historically it was also a region of cotton production. As Cavalcante et.al. write in their report on “Cotton Crops in the State of Ceará”, Ceará was one of the major producers of cotton in Brazil but fell into decline following a trade opening to the rest of the world, along with a boll weevil infestation (Cavalcante et al., 2007). Although some parts of Brazil have seen a return of the cotton sector, Ceará has not. The decline occurred from 1985 to 2005, with Ceará going from producing 5.7% of the total cotton production in Brazil to around 0.2% (Cavalcante et al., 2007). One

of the municipalities, Quixeramobim, in my study had historically been one of the top five municipal producers of cotton in Ceará.

Smallholders and subsistence producers rely on corn, beans, and cassava, timing production with the rainy season. As such, annual production is limited. Furthermore, the area is subject to cyclical droughts. Smallholders with more capital may also engage in irrigated vegetable production for the market. In the past landless workers and subsistence producers left the land when droughts endured too long, walking to cities in search of work to prevent starvation. More recent policies providing Bolsa Familia have largely made this course of action unnecessary.

Moradores and landless workers tend to reside on the poorest rung of the ladder, often eking out a subsistence living and taking work as day laborers (*boia-fria*) named after the cold lunches they carry with them to their work. Day laborers are often picked up by a truck early in the morning; they engage in strenuous work under poor conditions for low pay. *Moradores* are a type of sharecropping agricultural production system in Brazil. According to Jacquet, in Ceará, *moradores* historically came into existence because of cotton production. While raising cattle required relatively little labor, raising cotton crops was labor-intensive, but only over a short period (Jacquet, 2000). She writes that during the 18th and 19th century this made relying on slave labor costly. In response, landowners provided a cheap home and land to raise subsistence crops and small animals to families via a verbal contract. In return, the families were expected to help during harvest and provide several days of work per week to do chores around the farm for which they were paid less than the daily agricultural workers (Jacquet, 2000). In the 1960s, as mechanization decreased the need for labor and livestock production became more attractive, and with the decline of cotton production in the 1980s, *moradores* began to be kicked off the land becoming landless workers (Jacquet, 2000). *Moradores* and small-scale agriculturalists in the sertão depend primarily on beans, cassava, and corn (Heredia, 1979). Those with

a greater income might have access to funds for irrigation and grow vegetables for the market, as well as have some livestock, ranging from pigs to goats to sheep to cattle.

The participants in my study were land reform recipients, living on agrarian settlements that had received a São José Agrário subproject (a CDD subproject). Many of these recipients had previously been landless workers and *moradores*. As such, they had worked for large landowners or had engaged in subsistence production.

1.3 Background

São José Agrário (SJA) emanated out of a line of almost continuous World Bank projects in Brazil's rural northeast commencing in 1974. The community-driven development approach was first implemented in the region during the 1980s, as a spin-off of the larger WB project called the Northeast Rural Development Program (NRDP) (Coirolo and Lammert, 2009). Deemed a success, the World Bank reformulated their projects in Ceará around this approach in 1993. In 1995, the program was renewed and expanded in the Northeast, and the states took on a larger role in providing counterpart funding. The program was named the Rural Poverty Alleviation Project and extended from 1995 to 2001. In the state of Ceará, it was called São José I (SJI).³ The WB provided loan funding of US\$70 million and the state provided US\$27.9 million (The World Bank, 2001). In 2001, the project was renewed. It was called the Rural Poverty Reduction Project by the World Bank and called São José II (SJII) by the State of Ceará. SJII was funded via a WB loan of US\$70 million and State counterpart funding of US\$38.6 million and continued until 2009 (The World Bank, 2009). In 2012, the WB project was re-conceptualized and named the Ceará Rural Sustainable Development and Competitiveness Project; locally it was called São José

³The World Bank and the state of Ceara had different names for the same projects. The State of Ceara used Sao Jose to refer to many of the projects co-funded by the WB and the State of Ceara. Each new project was given a number, thus Sao Jose I, Sao Jose II, Sao Jose III.

III (SJIII). SJIII has been approved and by its end date is expected to receive financing equal to US\$100 million from the WB and the state is expected to provide counterpart funding of US\$50 million from 2012 to 2016 (The World Bank, 2012). São José Agrário (SJA) was a subcomponent of the larger SJII project, originating in the additional financing stage. In Ceará, the implementing agency is the Department for Agrarian Development (SDA - Secretaria de Desenvolvimento Agrário).

Many agricultural productive subprojects require access to land. When the projects above began to focus on rural communities rather than individual small producers, the need for land became an important necessity to making productive projects viable (Coirolo and Lammert, 2009, 91). The answer to the need for land was presented in SJII. In 1997, a part of this project contained an experimental component called *Projecto de Reforma Agrária Solidária* (Agrarian Reform Solidarity Project) supported by the WB, where land was obtained via a willing-buyer willing-seller framework (Pereira, 2004). Pereira notes that the *Projecto de Reforma Agrária Solidária* had two parts: part one loaned money to community associations to buy land and part two provided grants to community associations for productive agricultural projects. The associations had 15 years to pay back the loan back with a five-year grace period. The *Projecto de Reforma Agrária Solidária* provided a model for the *Cedula da Terra* program, a pilot project for six northeastern states that was organized similarly, including both a loan for community associations to buy land and grants for productive subprojects.

The WB considered *Cedula da Terra* a success, so the WB scaled it up creating the *Crédito Fundiário* program. The WB classifies this program as community-based land reform. Although it is possible for individual families to buy land through this program, it occurs infrequently. The program is targeted toward groups of families which apply for funds through community associations to create settlements. Before the genesis of market-led land reform, much of Brazilian land reform was expropriation-based.

Expropriation-based land reform was a result of the 1988 Brazilian Constitution. This Constitution states that land which is not complying with its social function can be expropriated (Brasil, 1988). Land's social function is not fulfilled if the land is not cultivated or used over a reasonable time period, and/or when the landowners do not comply with legal labor practices, and/or if the landowners are not preserving the environment (Brasil, 1988). Groups organize and occupy the land. The land then comes under judicial review. If it is found not to be fulfilling its social function, the land may be ceded to a settlement. Settlements arising through this type of land reform are administered by the National Institute of Colonization and Agrarian Reform (INCRA, Instituto Nacional de Colonização e Reforma Agrária). The Landless Workers Movement is most closely linked to these land reform settlements. Half of my case studies fell under the classification of expropriation based land reform, and half were market-led land reform settlements.

SJII was split into two components: the original loan that covered the period from 2001 to mid-2006, and an additional financing loan that covered the period from mid-2006 through 2009 (The World Bank, 2009). In 2007, soon after the additional financing loan was approved, the MST (Landless Workers Movement) occupied the SDA (Secretário do Desenvolvimento Agrário, the state offices housing São José II). The MST demanded project funds for agrarian reform settlements. The then governor, Cid Gomes of the Partido Republicano da Ordem Social (Republican Party of Social Order, PROS) and formerly of the Partido Socialista Brasileiro (Brazilian Socialist Party, PSB), was sympathetic to their demands. He agreed that a portion of the money, around US\$15 million would be dedicated to the settlements (Sao Jose Agrario Technician B, 2013). The SDA called this component São José Agrário (SJA) and the Landless Workers' Movement named it 180 MST.⁴ The MST social

⁴Here on out I will use the name São José Agrário (SJA).

movement played an active role in the project accompanying the projects from start to finish and dialoguing with the SDA. São José Agrário was originally set to fund 180 subprojects on agrarian settlements, in the end, they were able to disburse funds to 163 settlements, around a 91% disbursement rate which is considered satisfactory (Sao Jose Agrario Technician B, 2013).

The SJII projects followed a particular set of steps specific to the CDD project design. SJII began by attempting to adequately disseminate the project to the public. Project dissemination was often done over the radio, through agricultural workers' labor unions, among other avenues. Once an individual or group became aware of the project, they formed a legally recognized association, called the community association, with a bank account specific to the project. Community associations were often formed around a particular need rather than a geographic focus. The association was established via the creation of a legally recognized document. All community association members signed or lend their fingerprint (the formal way to sign if illiterate) to the document. The document included a record of the formation meeting, the association's officers, committees and committee members, including the accounting committee. Once the document was complete, it was submitted to the local registry. They then could open a bank account. This bank account could only be used for funds for the community subproject, in which two association officers had to sign off on all expenses.

The next step was for the community association to prepare a subproject proposal and to submit it to the state technical unit (STU) housed in the Department of Agrarian Development (SDA). Groups choose projects from a menu given by the WB and the State agency. Table 1.1 shows that projects proposed under the SJA Project. SJA funded primarily productive and infrastructure projects. Four of these subprojects had yet to be implemented at the time of my visit, and seventeen had not been funded.

Table 1.1. Subproject Type

Project Type	Number
Livestock	27
Mechanization (Tractors)	26
Irrigation	21
Piped water	21
Cashew Plantations	16
Reservoir	11
Bee-keeping	10
Poultry	10
Perimeter Fences	9
Sweets making	6
Fish farming	6
Cultural House	5
Productive Support	3
Artisanal Fishing	3
Flour mill	1
Handicrafts	1
Seaweed	1
Store	1
Trading Center	1
Bakery	1
Total	180

Data from the MST. Only 163 of these were approved and implemented.

Once the state technical unit received the subproject proposal, they checked to make sure the community and the subproject met a set of eligibility requirements: the group must be part of a target group and all group members have to have participated in choosing the subproject. Additionally, the community must have decided on the cost of the subproject, must know how to obtain goods and services for the project, and have planned the operations and maintenance phase of the project (Coirolo and Lammert, 2009).

If the subproject proposal was approved, the state technical unit released money from the state treasury to the associations in installments via the Bank of Brazil. The process was as follows; they would release the first installment, the association would provide documentation detailing how the money was used, and if this followed the project protocol, the second installment would be released (Sao Jose Agrario Technician A, 2013). The same method was followed for the third installment to be

released. If the subproject was not implemented correctly, then the STU returned the remaining money from the bank account back to the treasury.

In the SJA and SJII projects, once the community's selected project was approved, they acted collectively to implement, operate, and maintain the project. The community association was responsible for contracting the technical agency and for acquiring the goods and services needed. Furthermore, the association had to provide at least 10% of the project's cost in labor, cash, or kind. Most often the settlers I interviewed chose to provide labor. The rule for contracting a technical agency, or for obtaining goods or services was to get at least three bids and then the community association chose the least-cost bid meeting the minimum quality standards. Once the technical agency, services, and goods were chosen the state technical unit checks that the provider is certified and passed the money to the association to pay the provider. The community associations were also required to keep financial records of their payments, such as invoices to contractors and for goods and services.

Once the subproject has been completed, the community was responsible for keeping it running. The subproject stated that the community should charge a user's fee to provide funds for both infrastructure and productive subprojects. Those that were infrastructure tended to look to the municipal level for funds to help with maintenance.

São José Agrário had some important differences from the SJII, due to extensive collaboration with and involvement by the MST. First and foremost the MST choose which settlements would participate based on their participation in the occupation of the SDA in 2007 in order to get access to SJII project funds, the desire to carry out a project, and their connection with the MST. The state did not intervene in this unless there were problems with the eligibility of the associations or of the subproject proposals. Additionally, the settlements already had legally recognized community associations, as an association is a requirement of settlement creation. These asso-

ciations had been established originally with the goal of gaining access to land. In SJA, at least in the smaller settlements, the same association was used for the subproject as well. Participation in the CDD subproject was voluntary and it was not required that participants be registered settlement members. Thus, some registered settlement members did not participate, and some unregistered settlement members did participate.⁵

After settlements were chosen, teams of state technicians and MST representatives went to each settlement and discussed the subproject with them. The teams spent between one day and five days in each settlement. If the settlement had not chosen a subproject, they facilitated subproject choice, which included settlers voting on which project they wanted. Once the settlement had chosen a subproject, they evaluated the viability of the subproject and made sure it fit SJII guidelines, which had restrictions related to the amount of money per project, and type of subproject. Once a subproject was chosen, and the state technical unit approved the subproject the settlers followed the SJII project process with one difference. This was that the MST tended to accompany these settlements, at least to some extent, through much of the subproject process.

1.4 Data and Methods

In order to investigate the success and failure of the SJA subprojects, I used a mixed methods approach combining in-depth interviews, participant observation, and a survey I implemented in six settlements. My study is based on 14 months of fieldwork; July and August of 2011 and July 2012 through June 2013. I conducted formal interviews with over 60 government officials, project technicians, academics,

⁵Unregistered settlement members are often family members living in the settlement. They have no rights to the land for animal husbandry and are not officially part of the association representing the settlement. They have had a small plot of land on which they grow corn and beans, but their primary employment is off the settlement.

social movement leaders, labor union leaders, and CDD participants. In addition, I conducted 8 case studies of agrarian settlements, which had received SJA subprojects, and conducted a census survey of six of the settlements.

During the pilot phase of my study, I gathered information via informal interviews and gained permission to access the settlements that participated in the SJA project from the Landless Workers Movement and the State Technical Unit housed in the Department of Agrarian Development in charge of the SJII and the SJA projects. SJA provided funds for 180 subprojects to be implemented in agrarian settlements affiliated with the MST, 163 of which were approved and implemented. The maximum value of a project was USD 50,000. There was a total available funding for the SJA project of 15 million which covered both the subprojects, training, and overhead administration. The MST made available to me a list of the SJA subprojects, by subproject type, subproject cost, settlement, and the number of participants. I matched this with official lists of agrarian settlements in the state by number of households, date of officially becoming a settlement, and municipality.

Of the 163 subprojects, using the information above I choose eight to be part of my sample. The settlements were chosen for minimum variation due to geographic location (including micro-climate and political factors), year of becoming a settlement, and number of settlement families. Thus, I chose two municipalities, Canindé and Quixeramobim, that had a large number of subprojects with a similar micro-climate — the *sertão*. I then choose only settlements that had been established between 1998 and 2002. This criterion allowed me to look at settlements that were constructed under similar land reform policies, either Crédito Fundiário or national land reform settlements.⁶ In addition, it meant they were of similar ages and that they had been functioning for at least ten years giving them time to experiment with and establish

⁶Crédito Fundiário is a statewide land reform program co-developed and co-funded by the State government and the World Bank. It is a willing buyer willing seller program.

a set of institutions. For those settlements that had to pay a loan back (Crédito Fundiário), this ensured that they had reached the stage where they were expected to begin paying on the loan (indicating the maturity of the settlement). My third requirement was that there be between 10 to 30 families to ensure I compared settlements of similar size. I choose settlements that were smaller because I administered a survey to all settlement members and would have been unable to do a census survey if the settlements had more than 30 families. In the two municipalities, seven settlements met this criterion. Thus, I included all seven settlements. I had originally planned to include the additional criteria of maximum variation in subproject outcomes but since I had already included all subprojects that met the above requirements it made this criteria moot. I included one additional settlement (the first settlement) in another municipality which had a strong affiliation with the MST. This settlement assisted my analysis of the relationship between the settlements and the MST. In this settlement, Settlement 1, and in Settlement 2, I conducted interviews but not the survey.

The SJA subprojects in my study included beekeeping (apiculture), irrigation projects for fruit trees and vegetable crops, growing *capim* (a grass feed for livestock), and a cashew plantation. Infrastructure projects mainly dealt with water storage and fences around the settlement (see Table 1.2).⁷

The settlements were difficult to access. I had the name of the settlement, but not its location. They tended to be quite remote and they were not official towns and thus, not on the map. They were a collection of houses, occasionally accompanied by a school. The settlement members often had cell phones, but rarely had service. To access these communities, I requested assistance from the municipal agricultural workers unions and the Landless Workers Movement. As such, these two entities

⁷The WB and the SDA classify a particular project as infrastructure or productive. I use their classification.

Table 1.2. São José Agrário Subprojects

Municipality	Subproject	Type	Year	Settlement	Cost	Existing
Itapipoca	Cashew	Productive	2008	1	R\$70,000	Yes
Quixeramobim	Fence	Infrastructure	2008	2	R\$46,000	Yes
Canindé	Irrigation	Productive	2009	3	R\$9,700	No
Quixeramobim	Capim/Shed/Fence	Prod/Infra	2010	4	R\$50,000	Yes
Canindé	Apiculture	Productive	2008	5	R\$58,800	On Hold
Canindé	Reservoir	Infrastructure	2009	6	R\$90,000	No
Canindé	Irrigation	Productive	2010	7	R\$82,000	No
Quixeramobim	Tractor	Productive	2010	8	R\$80,000	Yes

Author's Data. Municipality is the location of the settlement. Subproject describes the subproject received for the community. Subprojects can be classified as either productive or infrastructure subprojects. Year is the year the subproject was implemented. Settlement is the identity of the settlement (order of visitation). Cost describes the total grant given for the subproject. Existing describes if the subproject was still in existence at the time of my visit. On hold describes a subproject that was not currently functional when I visited but which some of the settlers expected to start again sometime in the future. Settlement 4's subprojects were a combination of three smaller subprojects - including capim (a feed for cattle), a storage shed and a fence. These composed both productive and infrastructure subprojects.

served as gatekeepers to the settlements. It took significant time to meet and establish the relationships necessary to visit the settlements. A municipal agricultural workers union representative or a representative of the MST would take me to the community and introduce me or have contacted the community in advance to let them know who I was. Occasionally, I got detailed instructions on how to get to a community and I would take the bus or a truck and introduce myself. I would then stay in the community for around one week, generally spending nights at the association president's home.

I conducted a variety of interviews with many different actors associated with the settlements and with the SJA subprojects. Interviews conducted in the settlements with subproject participants were structured. In the first two settlements, I interviewed 12 and 14 people, respectively. According to the literature on the method of interview saturation, between 12 and 15 people is the point at which redundancy is reached (Guest et al., 2006; Trotter et al., 2001). Interviewees were purposively sampled for variation in age, gender, and leadership roles within each settlement (Ritchie and Lewis, 2003). All subproject participant interviewees were asked the

same questions, but follow-up probes could differ. These interviews covered the SJA subprojects, their participation in these, as well as their crops and animals, other projects they may have received, access to health and education, income, and participation in community work.

Interviews with technicians, government officials, MST representatives, agricultural union representatives and other actors were semi-structured and varied depending on the role of the interviewee to the subproject communities. Interviewees were non-randomly chosen. These interviews covered the subprojects, questions regarding the viability of the settlements, agricultural techniques, land reform, and access to health and education of the settlement members.

Using this information I created a survey instrument that I applied to all households in six settlements, for a total of 93 households. The surveys lasted between 45 minutes and one hour and a half. They covered each households', education, literacy, access to health care, income, assets, types of work they were engaged in, questions on participation and subproject outcomes, collective settlement work, participation in settlement and subproject governance, as well as questions about their agricultural work. Most interviews took place outside on the participants porch or occasionally just inside the home in the living room. Given the lack of privacy in these communities, these were rarely private one-on-one interviews and often family members or neighbors were present. In addition, frequently someone from the community would accompany me in order to introduce me to each household (generally an adolescent or a woman). I almost always included the head of household in the survey as this person frequently was able to best answer many of my questions, but I was often also able to include the spouse in my questions as well.⁸ Regularly, it required both the

⁸In the northeast there is a clear division of labor between men and women with regards to agricultural work. The norm is for the men to do the majority of the work in the fields while the women care for the gardens. They will work in the fields at times of harvest and planting if needed.

head of household and the spouse together to answer all the survey questions. My survey information provided almost all of the empirical data I use for analysis. I occasionally check my empirical data against the national, state, and rural components of the Brazilian household survey of 2012 (Fundacao Instituto Brasileiro de Geografia E Estatistica, 2012). I had over a ninety percent response rate. Very rarely did anyone decline to participate (once) but occasionally settlement members were traveling or sick, and as such were unable to participate in my survey.

The week I spent in each settlement, attending meetings, social events, and sometimes helping with household work provided additional insight into the settlements and the subprojects. In particular, variations in income became more apparent as did relationships and fissures within the communities. It also allowed me to observe general assembly meetings and meetings about other projects that were currently being implemented. Additionally, I was able to observe collective settlement work. This information was a valuable check against my interview and survey results, both for understanding them, and for clues as to what the participants left out of their responses. As well as to answer questions I had not thought to ask.

All interviews were recorded, transcribed and coded. I used a combination of descriptive coding and hypothesis coding. While I went into my study with some background and several hypotheses, I sought to hear what the participants said beyond what I expected. For this reason, I began with descriptive coding in Nvivo. Descriptive coding codes for topics and is generally used as a first round, somewhat broad brush approach to coding (Saldana, 2012). I went through each interview and coded based on topic. I then broke relevant topics down into subtopics and sub-subtopics. This allowed me to use Nvivo to run queries (Bazeley and Jackson, 2013).

Two examples of the most important types of queries I used are the following. In the first example, I began by coding interviews for when they addressed the topics of SJA and SJII. Then, I coded for when the interviewees brought up particular problems

within SJA and SJII. I then broke down these problems under particular types and coded again for problem type. This allowed me to query by “SJA Problem” and “SJII Problem” and “Problem Type”. Thus, I had as columns SJII and SJA problems and as rows the type of problem identified by the interviewee, each cell identified the number of times the problem was identified. This allowed me to determine technical assistance and administration as the most common problems identified by interviewees in both SJII and SJA. In the second example, I was able to query for interviewee as the row and list in the columns items coded as “SJA problems and Technical Assistance”, then I could fill in the table with a summary of what each interviewee said for the overlapping codes “SJA Problems” and “Technical Assistance.” As such, I was able to refine further what the interviewees identified as the specific problems with technical assistance. My analysis of how the subprojects fail was primarily based on descriptive coding and the resulting themes.

Hypothesis coding assumes I expect particular answers from the questions I ask, and I am testing to see if those hypotheses are correct (Saldana, 2012). In particular, I used this method to explore problems with elite capture, free riding, and literacy. I also brought in the themes I had created to enrich further my understanding of their responses to free riding and failure.

By including all settlements with subprojects which met my above criteria in the two municipalities and by conducting a census survey in six of these settlements, I was able to obtain comprehensive and complete descriptive statistics at the individual settlement level. This data is representative of the settlements that met my criteria in these two municipalities. Since the size of the settlements in my sample were all between 10 and 30 households they are not representative of the experience one might find in larger settlements.

My study design maintains the confidentiality of all interviewees and survey participants. I rely on confidentiality to protect participants from any negative repercus-

sions their interviews could have on their current status and future project eligibility. I also keep interviewees that represented the SDA, the social movement, the agricultural workers' labor unions, and the technical agencies confidential as the project is ongoing and many interviewees are involved its newest incarnation. Thus, I hope to ensure there are no adverse outcomes stemming from study participation.

CHAPTER 2

PARTICIPATORY DEVELOPMENT AND PROBLEMS OF COLLECTIVE ACTION

2.1 Participatory Development

The concept of participatory development appealed to the development community during the 1990s, gaining the support of development scholars and development agencies (including the World Bank and the United Nations) (Rahman, 1995). As Sirrat and Henkel point out, “Such is their popularity that by the early 1990s every major bilateral development agency emphasized participatory policies” (Henkel and Stirrat, 2001, 168). For example the UNDP’s 1993 Human Development Report made participation its main topic and the opening sentence states, “People’s participation is becoming the central issue of our time” (United Nations Development Programme, 1993, 1). In 1998, the WB president also emphasized the importance of participatory development,

“Participation matters - not only as a means of improving development effectiveness as we know from our recent studies, but as the key to long-term sustainability and to leverage. We must never stop reminding ourselves that it is up to the government and its people to decide what their priorities should be. We must never stop reminding ourselves that we cannot and should not impose development by fiat from above - or from abroad” (Wolfensohn, 1998).

Despite the enthusiasm international institutions have shown for participatory development, there is surprisingly little data confirming the efficacy of the participatory development approach (Dill, 2009; Mansuri and Rao, 2004; Platteau, 2004; Prokopy, 2009).

Participatory development is a term used to refer to many different approaches to development by a range of actors. One (rather uninformative) definition of participatory development is the participation of regular citizens in the development process (Tufte and Mefalopulos, 2009). Another definition is popular participation in development (Rahman, 1995). While there are many ways one can parse the concept of participatory development, I focus on one which is driven by the goals of the actors advocating for participatory development. This lens causes the approaches to fall into two categories, which I refer to as the radical approach and the project-based approach. I borrow the term project-based approach from Tufte and Mefalopulos (Tufte and Mefalopulos, 2009).

The radical approach to participatory development emphasizes the use of participation to confront power, knowledge, and income inequalities. This approach emphasizes explicitly political collective action to increase the power of the participants. The radical approach understands power as a zero sum game and envisions a process in which those with less power actively confront those with more power to shift the balance of power towards those with less power. In this way, the less powerful can gain the power necessary to change the conditions of their existence (Rahman, 1995). The approach builds on the work of Paulo Freire. Freire advocated for “conscientization” in his writings on popular education that the oppressed become actors in change rather than passive followers of their oppressors (Freire, 1970). Action is facilitated through an education process realizing self-awareness which creates the conditions for collective action to achieve the goals of transforming the oppressed peoples’ reality (Freire, 1970). Thus, empowerment occurs through taking power.

In the 1970s some development theorists, practitioners, and participants incorporated these ideas into their views of development. They placed much less emphasis on economic growth as the ultimate goal than did the conventional approach to development. Instead, their approach to development weighted more heavily the importance

of class and power in the development process and the resulting inequities (Rahman, 1995). As a result, this group emphasized confronting these issues through local bottom-up participation.

The project-based approach to participatory development posits that community control of development projects and funds creates efficient outcomes, empowered communities, and reduces corruption (Mansuri and Rao, 2012). The project-based approach relies not only on the peoples' participation but also the importance of incorporating peoples' knowledge (often spoken of as indigenous knowledge) (Rapley, 2007). Efficient outcomes are expected to stem from two sources. First, the community's intimate knowledge will result in the specialized direction of funds toward the community's highest priority in each local case (Chambers, 1983). Chambers (1983) popularized the idea of rural peoples' knowledge and proposed a model for how international agencies, government agencies, and practitioners should and could interact with communities to improve their well-being by giving them the voice and the means to direct development. Secondly, the local knowledge facilitates the targeting of the project to the poorest in the most cost-effective way (Paul, 1987; Mayo and Craig, 1995).

Next, this approach assumes, empowerment will result through the deed of putting the community in charge of defining their needs and priorities and acting upon them through received funds, increasing members' capabilities, political voice, and control over the development project. "Furthermore, the fundamental aim of empowering people to handle challenges and influence the direction of their own lives is inherent in participation" (Tufte and Mefalopulos, 2009, 4). According to the authors, this occurs because participation increases people's own capacities and ability to influence governance. In this approach, power is not seen as a zero-sum game and does not detract from the power of the powerful. To some extent, empowerment is given through the development project. The development project opens a circumscribed

space for rural communities to voice priorities and control funds, often facilitated by the staff of the development institution or its (state, regional, etc.) partners. While empowerment, in this case, is domesticated — it is understood by these projects to be a base from which the community members can build toward collective action and political voice.

There is also an assumption in the case of the World Bank that project-based participatory development can be an avenue to restrict corruption by avoiding the state and working through local community governance. This fits well with the WB's historical move away from state intervention in the 1980s and 1990s.

An outcome of the WB participatory projects is that through project design, which requires that the community provides some portion of the cost of the project (communities often choose to provide labor), the costs of the projects are reduced (Mayo and Craig, 1995). "Cost-sharing" is helpful to the WB which has limited development funds, and to the state which provides counterpart funding as it reduces the amount of money they must provide. It must be mentioned the communities targeted are often some of the poorest. Thus, one could evaluate the cost sharing that the communities partake in as a transfer from the poorest to the state and the World Bank.

"Community participation in this context is thus part of a wider strategy to promote savings, target services only towards those who have been identified as being most desperately needed them, and to shift the burden of resource provision way from the public sector towards communities, including communities in greatest need themselves" (Mayo and Craig, 1995, 4).

Such cost-sharing is particularly regressive when the project is for basic infrastructure, something one would hope would be financed by the state and national government via taxes on richer segments of the population.

My particular division of radical versus project-based approaches to participatory development is not unique. In fact, several other authors have followed a similar line of

logic. For example, Tufte and Mefalopulos divide approaches into the social movement perspective and the project-based¹ or institutional perspective. Their definition of the social movement perspective is similar to my conception of the radical approach. They write, “Some stakeholders define participation as the mobilization of people to eliminate unjust hierarchies of knowledge, power, and economic distribution” (Tufte and Mefalopulos, 2009, 4). They go on to define the project-based or institutional perspective as “...the reach and inclusion of inputs by relevant groups in the design and implementation of a development project” (Tufte and Mefalopulos, 2009, 4). The rest of their working paper goes on to explore the institutional perspective as both a tool for development agencies in which “participation can be used as a tool to achieve a pre-established goal defined by someone external to the community involved” (Tufte and Mefalopulos, 2009, 4).

Mansuri and Rao, who work with the World Bank, divide participatory development between organic participation and induced participation (Mansuri and Rao, 2012). Organic participation covers social movements and other forms of civic action. “Induced participation ... refers to participation promoted through policy actions of the state and implemented by bureaucracies (the “state” can include external governments working through bilateral and multilateral agencies, which usually operate with the consent of the sovereign state)” (Mansuri and Rao, 2012, 32). The authors go on to explain induced participation requires the intervention of “powerful” institutions that provide extrinsic motivation. In the case of organic participation, participants are assumed to be intrinsically motivated (Mansuri and Rao, 2012).

Oakley posited one way (among others) to define participation depends on whether it is a means or an ends.

¹I borrowed their name project-based above for the lack of a better term (Tufte and Mefalopulos, 2009).

“Participation as a *means* implies the use of participation to achieve some predetermined goal or objective. ... Participation as a means stresses the results of participation in that achievement of predetermined targets is more important than the act of participation. ... Participation as an *end* is ... a process which unfolds over time and whose purpose is to develop and strengthen the capabilities of rural people to intervene more directly in the development process. Such a process may not have predetermined measurable objectives or even direction. As an end in itself, participation should be a permanent feature of any rural development project, an intrinsic part which grows and strengthens as the project develops. Participation as an end is an active and dynamic form of participation which enable rural people to play an increasing role in development activities” (Oakley, 1991, 7-8).

Oakley explains that participation as a means is based on reaching a predetermined objective, reaching said objective is more important than the participation itself (Oakley, 1991). Tufte and Mefalopulos show that the pre-established goal is often defined by people outside the community (Tufte and Mefalopulos, 2009). As such, this type of participatory development needs the community only in so much as they agree to take on and work toward the outside objective. Such objectives, decided on by development agencies and state governments outside of the community and imposed to some extent on the communities, are less likely to result in collective action that would challenge power hierarchies.

Parfitt takes on the means ends separation of participatory approaches and looks at the contradictory nature of participation seen through this lens (Parfitt, 2004). His shorthand for means-based participation is efficiency, and for ends-based participation it is empowerment. Parfitt argues that there is an important difference between these two approaches in terms of power. In means-based participation power relations between the community/group, development agencies, and governmental agencies mostly remain the same. The hierarchical nature of the projects will remain with the design and management in the hands of the development/government agencies, and the community will participate largely through work. Participation as an ends is expected to change power relations between the community and the development

agency, in which the community gains greater power creating greater equality between the two and thus is empowered. “Whereas participation as a means is politically neutral insofar as it does not address such power differentials, participation as an end has an emancipatory, politically radical component in that it seeks to redress unequal power relations” (Parfitt, 2004, 539). This distinction between means and ends-based participation is not entirely clear cut, in that means-based participation is not always neutral, in fact, it can reinforce existing power differentials.

Some authors argue project-based participatory development has co-opted radical participatory development. For example, Parfitt writes,

“‘Participation’ in development activities has been translated into a managerial exercise based on ‘toolboxes’ of procedures and techniques. It has been turned away from its radical roots: we now talk of problem-solving through participation rather than problematization, critical engagement and class ... This limited approach to participation gives rise to a number of critical tensions or paradoxes. While we emphasize the desirability of empowerment, project approaches remain largely concerned with efficiency. While we recognize the importance of institutions, we focus attention only on the highly visible, formal, local organizations, overlooking the numerous communal activities that occur through daily interactions and socially embedded arrangements. A strong emphasis on the participation of individuals and their potential empowerment is not supported by convincing analyses of individual positions, of the variability of the costs and benefits of participation, of the opportunities and constraints experienced by potential participants” (Parfitt, 2004, 22).

The World Bank approach to participatory development is called community-driven development(CDD) and community-based development (CBD). The project I studied was a community-driven development project. This type of project is characterized by giving community groups and local governments choice of a menu of possible subprojects, control over planning decisions and investment resources. Community-based development is similar to community-driven development but with less community control of project funds and implementation. These are both project-based approaches. The World Bank would most likely categorize it as induced participation.

The popularity of the project-based participatory approach has resulted in a plethora of such projects. As Banerjee and Duflo write,

“The new ideology and a lot of international institutions is that we should hand the beneficiaries the responsibility for making sure that schools, clinics, and local roads work well. This is usually done without asking the poor whether they really want to take on this responsibility. In the face of the states clear failure to deliver public services to the poor ... the logic of handing anti-poverty policy back to the poor is superficially irresistible. The beneficiaries are directly hurt by bad services, and they should therefore care the most; moreover, they have better information, both on what they want and on what is happening on the ground. Giving them the power to control the service providers (teachers, doctors, engineers) — either the ability to hire and fire them or, at least, the power to complain about them — ensures that those who have the right incentives and the right information are the ones making the decisions (Banerjee and Duflo, 2011, 247-248).”

They go on to note that operationalizing such an approach is steeped in complexity. Institutions, culture, and historical context frame the projects and even small changes in project design can greatly influence outcomes.

The project-based approach to participatory development has encountered obstacles to achieving project goals. One obstacle that emerged early on dealt with the realization that communities are not homogeneous and are host to conflicting wants and abilities to influence those wants (Cleaver, 1999, 2001). Beard found in her case studies in Indonesia it was female-headed households and recent migrants who participated least in a community development initiatives (Beard, 2007). Often these are some of the more vulnerable groups these projects would hope to help. Beard writes, “If a household is, for example, outside familial and dominant social networks, its members may have difficulty in establishing membership in community organizations and gaining access to the goods and services they deliver” (Beard, 2007).

Another challenge dealt with how to scale-up community-driven development projects to increase efficiency and reach greater numbers of people. Indeed the CDD approach touts loads of manuals, reports, and rules, frequently attempting to draw

lessons as to how CDD can be scaled up (Binswanger-Mkhize et al., 2010; Conforti and Pica-Ciamarra, 2007). The formalization of a process of empowerment into a series of similar steps may feel to participants as learning how to jump through hoops (a top-down approach) rather than meaningful engagement in creating development (Cleaver, 1999; Mosse, 2001; Parfitt, 2004). Additionally, a project may be successful in one context, but the same project could be unsuccessful in another context, due to the historical, cultural, political, and community characteristics.

In addition, the literature has identified the collective action problems of elite capture, clientelism and free riding as particularly grave problems facing CDD. These are the topics of the following sections.

2.2 Collective Action

Collective action is defined in terms of a group of people acting in their own interests. In the Dictionary of Sociology, Marshall defines it as “action taken by a group (either directly or on its behalf through an organization) in pursuit of members’ perceived shared interests” (Marshall, 1998). Peetz identifies three factors that must be present for there to be collectivism; collective needs or interest “needs that are common to a potential group and that, therefore, help define that group”, collectivist attitudes, and coordinating capacity (Peetz, 2005, 2). Collective action often also has a political dimension in that it can arise in opposition to perceived injustice or as a way to deal with power inequities.

The relationship between participatory development and collective action differs between radical and project-based approaches. A radical approach to participatory development is an act of collective action originating organically out of the collective and confronting hierarchies of power. In the project-based approach, the relationship between participatory development and collective action is less clear. Community-

driven development recognizes collective action as both an input and an outcome, as well as being a project goal.

São José Agrário subprojects, like most community-driven development subprojects, rely on collective action from their initial stages of formation onward. The need for the prior ability to organize collectively is integral to obtaining a CDD subproject in the first place. In fact, to compete successfully for subproject funds, a group must coalesce around a particular goal, create a governing structure, and gain legal recognition. Only once this has been accomplished can a group apply for subproject funding.

CDD also has the desired goal of fostering the “capacity for collective action” (Mansuri and Rao, 2004). Once a community group is granted a subproject it must act collectively to implement, operate, and maintain that subproject. As Mansuri and Rao write: “Individuals have to believe that collective mobilization is worth the effort and be willing to participate; civic groups have to solve the collective action problem and exploit political opportunities to effect change; the nexus of accommodation in government has to be disrupted by the rising cost of ignoring citizens’ interests, so that politicians and bureaucrats change their actions; and their new actions have to result in changes in outcomes” (Mansuri and Rao, 2012, 110).

Elite capture and free riding are two common problems of collective action that are particularly relevant to my case studies. Elite capture is defined broadly as the control and use of subproject funds by an individual or a group of individuals who are not defined as the primary target beneficiaries of a subproject (Platteau et al., 2014). When elite capture occurs the elite subset of subproject beneficiaries that has wrested control of the subproject may direct them toward their best interests, interests that may not represent those of the target group as a whole.

Free riding occurs when an individual either under-provides effort or inputs, or over-consumes resources to the detriment of the group, that would be better off if all

provided more or consumed less. Successful participation in collective action relies on the participants having the needed skills, receiving an adequate payoff, and the institutions to limit free riding to manageable levels (Brett, 2003).

2.3 The Problem of Elite Capture

Elite capture is a pervasive criticism of participatory development and decentralization. Elite capture can be defined broadly as the control and use of project funds by an individual or a group of individuals who were not the primary target of the project (Platteau et al., 2014). When this occurs, those controlling the funds may direct them toward projects in their best interest, which may not represent the best interests of the targeted group. Mansuri and Rao who have conducted exhaustive literature reviews into the realm of CDD write, “The studies that have looked at who participates in CDD projects have found that on average participants are wealthier, better educated, more politically connected, and from higher status ethnic and tribal groups” (Mansuri and Rao, 2012, 128). Elite capture can be understood as a problem of collective action, in which the intended actions of the collective are captured by an elite. Community-driven development depends on the fruits of collective action reaching the targeted.

The elite can be defined along many parameters, such as income, education, power, gender, religion, and caste, among others (Dasgupta and Beard, 2007; Platteau et al., 2014; Rigon, 2014). Sources of elite power depend on the cultural context and the local conditions in which the project is embedded. In addition, since the elite is defined in comparison with the targeted beneficiaries, the definition of the former is dependent on the characteristics and constitution of the latter. The variety of factors possible for defining the elite presents an empirical challenge for those who wish to measure elite capture, both in choosing which factors are most important in identifying the elite, as well as in choosing what proxies could be used for elite status

(Fritzen, 2007). In the simplest interpretation, the elite are most often defined as those with the most money (Araujo et al., 2008).

One critique of community-driven development centers around the naive and overly simplistic view of the community (Cleaver, 2001; Mosse, 2001). At its simplest, community was conceptualized as a “unified organic whole” (World Bank Operations Evaluation Department, 2005, 177), wherein members share aligned priorities and “latent and unlimited capacities” (Cleaver, 1999, 604) which only require access to funds and the proper set of institutions to achieve full potential for development (Dill, 2009). The WB, while acknowledging the problem of making such an assumption of community, still posits that community members will act in solidarity and will have the same goals (World Bank Operations Evaluation Department, 2005; Platteau et al., 2014; Cleaver, 2001). Such an assumption allows for elite actors to manipulate the CDD process. Elites are able to take on the role of representatives of a unified community, giving them the ability to influence the process (even if they were not part of the targeted group). This simplification of a community hides both power differences and internal fractions.

The model of community-based and -driven development, used by the World Bank, relies on access to information and a range of skills the poorest may not possess. First, the community must become aware of the project. Second, a collection of individuals must become legally recognized as a group - called an association. Third, the association must apply for a project, by submitting a project proposal. In order to accomplish these steps, the community requires a medley of resources. For example, the greater the individuals’ and community’s connections the better their chance to learn of projects. Individuals must be able to organize, access, and pay for legal services in order to become an association. The projects also require literacy in the application process and, increasingly, computer literacy, as these processes go online.

Lastly, the projects require political know-how in order to navigate local and state government bureaucracies.

This host of needed knowledge and skills lends itself to co-option by those with more power, and sometimes precludes projects reaching those most in need. One of the main criticisms that the World Bank acknowledges of the CDD model is that it often fails to reach the poorest (World Bank Operations Evaluation Department, 2005). The WB frames this as a problem of targeting, but it may also be that the poorest do not have the minimum resources necessary to access such programs. Even in those communities that do access CDD projects, there seems to be a mismatch between community development methods/project setup and community capabilities. Some of these problems are reviewed in the World Bank CDD review,

“Even in Brazil, a middle-income country that has had a CDD program for decade, while over two-thirds of the municipal government officials interviewed in the state of Rio Grande do Norte said that most communities are capable of identifying and prioritizing their needs, the majority stated that most communities are not capable of preparing development plans, implementing and maintaining community projects, or mobilizing resources either within or from outside the community. Half of the municipal government officials interviewed also said that most communities are not capable of managing financial resources” (World Bank Operations Evaluation Department, 2005, 14).

The MST and labor unions assist the settlers in identifying possible projects. The MST was integral in bringing funds from São José Agrário into the settlements, as well as assisting the settlers in developing their projects, and maneuvering and pressuring state agencies for the timely release of funds.

Studies that have found significant evidence of elite capture have also attempted to analyze under what circumstances this occurs (Fritzen, 2007; Platteau, 2004; Platteau and Gaspart, 2003). There is a body of evidence suggesting a community’s ability to minimize elite capture and thereby to maximize the effectiveness of collective action is facilitated by group homogeneity, either ethnic, social, or economic (Okten and Osili, 2004; Alesina et al., 1999; Araujo et al., 2008). An extremely simplified example of

this is that as people tend to be more similar in their circumstances they may also be more similar in their preferences. If they are similar in their preferences, it is easier to come to a consensus around the type of project they may wish to support.

Mansuri and Rao have found that elite dominance in CDD projects depends on wealth and power inequalities, as well as ethnic heterogeneity and geographic isolation (Mansuri and Rao, 2012, 146). The authors further identified characteristics of elite capture which made the targeted groups worse off. Communities can be heterogeneous and unequal, not only in income but also in power, which is often understated (Mohan and Stokke, 2000). Fritzen found that while there was wide variation in project implementation and quality, those communities in which project boards were chosen in a more democratic manner, and in which there was significant investment in capacity building, there was less elite capture (Fritzen, 2007). Platteau describes a case study where attempting to discipline elite capture was impossible due to patron-client relationships, in which it was overly costly for the poorer members to discipline the elite (Platteau and Gaspart, 2003). In another paper, Platteau shows that releasing money in tranches also fails to eliminate elite capture, and he calls for greater monitoring of fraud (Platteau and Gaspart, 2003). This implies that elite capture may indeed be under-measured in CDD projects.

When collective action is an act of the majority of the community or of the targeted beneficiaries the likelihood of elite capture is diminished. Collective action reinforces a more even distribution of power within a community preventing elite capture (Das Gupta et al., 2004; Chebil and Haque, 2003). A group which has built strong ‘social capital’ can also use this power to limit elite capture (Manssouri and Sparacino, 2009). While much of the econometric evidence has found social fractionalization does indeed limit collective action, there is some qualitative evidence that points to the reverse (Dasgupta and Beard, 2007). As such, the inverse relationship between community homogeneity and elite capture has been questioned, and indeed,

it has been posited that the relationship is more complex. While community and economic homogeneity are helpful, they are not the only way in which to limit elite capture.

2.3.1 Clientelism and the Role of Civil Society Organizations

Clientelism is a relationship based on either bribery or reciprocity between a person, group or community, and a political actor. The same aspects which make CDD projects vulnerable to elite capture also make them susceptible to clientelism. Most often clientelism has been criticized because it co-opts the supposed desires of the poor by trading bribes or the promise of future goods and services for votes, participation in rallies, or other events. The community is often assumed to be receiving something of unequal and lesser value in return for selling their voice. In such cases, decentralization and participation can reinforce unequal power relations rather than increase democracy. In the WB projects I will review, this would most likely occur through the community association, in which the leaders of the community association have some relation to local politicians.

Benit-Gbaffou argues that the relationship is more complex: clientelism, participation, and democracy are intertwined and cannot be separated into good democratic relationships, and bad clientelistic relationships (Benit-Gbaffou, 2011). Furthermore, the rural poor receive very little in the average political process and, in fact, the patron-client relationship has been one of the few ways the poor are heard.

Northeastern Brazil has historically depended on patron-client relationships, which has been reproduced to some extent in the WB local land development projects (Pereira, 2004, 28). According to a study by the WB in Northeastern Brazil (including Ceará) of Rural Poverty Alleviation Projects community leaders had more contacts with influential people an average of 76% of the time (Binswanger et al., 2009). The MST and FETRAECE, by consciously creating democratic institutions,

work to combat these inequalities. These entities work in two arenas. One is demanding land for landless workers and the creation of settlements, with a goal of extensive agrarian reform. The other is demanding the provision of healthcare, education, and technical assistance.

Activism by the settlements and the MST won them the projects and in many occasions assisted the settlements throughout the project process. Historically the Agricultural Workers' Union had also been politically active in terms of land reform. At the time of my fieldwork, they had moved away from this line and were concentrated on assisting the settlers and all agricultural workers' in gaining access to government services, such as retirement, health care, drought assistance, water storage, etc.

Authors' writings indicate that an investigation into the role of accompaniment by social movements and labor unions is worthwhile in the analysis of CDD project outcomes and in confronting clientelism. In a meta-case study Das Gupta, Grandvoinet, and Romani found that an important component of successful CDD projects was demand from communities for services that should be available to them so that they would pressure the staff of their local agencies to provide them (Das Gupta et al., 2004). Social movements and labor unions can also provide advocacy, accompaniment, training, and even technical assistance. CDD projects often fail to reach and maintain projects with the poorest groups (Classen et al., 2008). Social movements and labor unions can assist the project managers in reaching these communities. It has been posited that external agencies play a critical role in helping communities to access information, resources, and organizational experience (Baird et al., 2011; Brett, 2003). Ability to access information can be improved by having social movements and labor unions capacitated to advocate for the community.

2.4 The Free Rider Problem

The free rider problem can be traced back at least as far as David Hume (McMillan, 1979). In a *Treatise on Human Nature* Hume wrote:

Two neighbours may agree to drain a meadow, which they possess in common; because 'tis easy for them to know each other's mind; and each must perceive, that the immediate consequence of his failing in his part, is, the abandoning the whole project. But 'tis very difficult, and indeed impossible, that a thousand persons shou'd agree in any such action, it being difficult for them to concert so complicated a design, and still more difficult for them to execute it; while each seeks a pretext to free himself of the trouble and expence, and wou'd lay the whole burden on others" (Hume, 2005, 345).

Samuelson formalized the theory of public goods² in the 1950s and pointed out the free rider problem which emerges when attempting to provide public goods at the optimal level (Samuelson, 1954).

Mancur Olson deepened the analysis of the free rider problem in collective action in the 1960s leading to greater scrutiny of collective action (Olson, 1965). Olson theorized that in a situation in which there was no outside coercion rational self-interested individuals would fail to provide the sufficient inputs to achieve the optimal outcome in a group setting, even if they all would have been better off (Olson, 1965). Public goods in particular fall prey to this problem, such as limiting pollution. As a total, everyone would be better off if pollution was limited but individuals or firms trying to maximize their well-being may over-pollute to reduce costs or effort. Olson went on to theorize that smaller groups may be more able to overcome this problem, but their provision of inputs toward the optimal outcome will still fall short (Olson, 1965).³

²Although he originally called them collective consumption goods.

³Interestingly Olson posited this theory, in which it would be almost impossible to sustain collective action due to the model of human behavior, during the 1960s — a period of intense, widespread, and successful collective action (Edelman, 2001). Even more interesting, this theory resonated to such an extent within the economics profession that it eclipsed other challenges to collective action and came to be understood as the primary challenge facing successful collective action.

In 1968, Garrett Hardin adapted the free rider problem to that of open access common pool resources (Hardin, 1968).⁴ Common pool resources are those belonging to a group in which it is difficult to exclude group members from use and the resources are subtractable (rivalrous) (Cox et al., 2014). As such use by one group member diminishes that available to other potential users. For Hardin, the problem was not that people would not contribute sufficiently, thereby free riding on the inputs of others, but rather that people would over-consume the natural resource leading to its degradation. Garrett Hardin used commonly held grazing land as an example: It would be in the best interest of the group to manage the grazing land sustainably so it would be available for long-term use (Hardin, 1968). Yet individuals will overgraze the common land as they get the total benefit to their animals but only share in a portion of the costs (the degradation of land limiting future grass production). Garrett Hardin named this the “Tragedy of the Commons” (Hardin, 1968). Solving this problem requires the intervention of a coercive (mutually agreed upon by the majority) administrative system or the privatization of common pool resources (Hardin, 1968).

In the 1980s, Russell Hardin expanded on Olson’s free rider problem (Hardin, 1971). He conceptualized it as a prisoner’s dilemma, in which again the optimal outcome would not be achieved, even though it would be best for the collective. He formally showed in a two person game how the individual maximizing his or her well-being would be better off by not contributing when the other (being the collective) contributed. Thus, all self-interested rational individuals would fail to contribute leading to the Pareto inferior position. The prisoner’s dilemma model has also been used to model the tragedy of the commons in which the players make a decision either to restrain (or not) their consumption of a common resource.

⁴In fact, he uses the example of pollution as the “reverse” of the “tragedy of the commons” (Hardin, 1968, 1245).

These theories assume the free rider problem cannot be solved by individuals. Coase made the argument that in the context of complete property rights, problems of overuse of resources could be solved (Coase, 1960). If there are just two parties each with complete rights over their property than the one which stands the most to lose can come to an agreement with the other, for example by paying the other not to produce, in which the party still receives a profit greater than no production or limited production and the other receives a payment equal to the party's lost production (Coase, 1960). North came to a similar conclusion, advocating for state institutional oversight or privatization as a way to correct problems of free riding and the tragedy of the commons (North, 1990).

Elinor Ostrom challenged the critiques of the viability of collective group action in the absence of state intervention and private property rights. In particular, she rejected the idea that the only solutions to free riding and overuse of resources were either privatization of the resource or strong government regulation. Instead, Ostrom argues persuasively using extensive case studies to show that solutions via collective action have been achieved at the local level to successfully manage the commons (Ostrom, 1990). Ostrom builds a theory of successful collective action in relation to the commons which proposes that solutions to collective action problems are context specific to the institutions, rules, and norms of the community (Ostrom, 1990). While the particular rules of the cases Ostrom studied vary greatly, she identifies a set of "design principles" or categories within which the rules of successful groups fall (Ostrom, 1990). In addition she identified a set of characteristics that predict a communities ability to create and enforce rules which pertain to her previously established design principles (Ostrom, 1990).

Solving the free rider problem generally requires creating successful governance institutions which create what Ostrom calls a "secondary" free rider problems. That is the governance institutions created to manage the original collective action problems

become a common good that is also subject to free riding, which then must also be solved.

Apart from the problems of collective action already mentioned, theorists have identified some others specific to small group collective action. These problems include group size, group heterogeneity, differential power relationships, the problem of supplying necessary institutions, appropriation, and provision (Beard, 2007; Ostrom, 1990, 2000). Solutions to both the problems of free riding and those just mentioned revolve around the ability to create local rules and norms that allow for monitoring and punishment (Baland and Platteau, 1996; Ostrom, 1990). These theories have been very influential in the field of participatory development and have been used as a basis around which to formulate participatory development projects as they give the tools for overcoming problems of trust and misconduct through the use of social institutions (Cleaver, 1999).

Olson theorized free riding would be a greater problem in larger groups as no individual would be able to significantly influence the outcome (for example voting in a national election). He acknowledges that smaller groups may be more able to overcome this problem, but their provision of inputs toward the optimal outcome will still fall short (Olson, 1965). Kyriacou argues that large groups face greater challenges to collective action because it is easier to be immoral (Kyriacou, 2011). First, because the cost of doing so is less due to their relatively more anonymous position within a large group, which loosens the constraints of group moral or ethical norms (Kyriacou, 2011). Second, the relative impact one individual has on the group outcome in large groups allows members to assign lesser importance to participation (Kyriacou, 2011). Third, large groups also make reciprocity between members less effective (Kyriacou, 2011).

The literature on common pool resource management and community development has found case study evidence to support the theory that large groups will

have more problems with free riding (Baland and Platteau, 1996; Prokopy, 2009). In Prokopy's study of two World Bank assisted projects located in India in which 1,523 households from across 45 villages were surveyed it was found that participants in larger villages were less likely to contribute to capital costs and, in one of the projects, less likely to participate in meetings (Prokopy, 2009).⁵

Certainly, some large groups have been able to overcome the free rider problem. For example, there exist large associations, such as the American Association for Retired People (AARP) and World Wildlife Fund (WWF), which lobby successfully for their members (Barbieri and Mattozzi, 2009). Members pay dues, but non-members also reap the rewards of their work. Yet, these associations do not fall apart. Why? Benefits of lobbying are non-excludable thus the group has to provide incentives to its members who are excludable to non-members - such as advocacy work, information, or hold some inherent value (belonging — social action) or reputation (Barbieri and Mattozzi, 2009). Other research has found in the case of lobbies, those which are smaller and more geographically concentrated do better (The International Bank for Reconstruction and Development, The World Bank, 2007).

Poteete and Ostrom argue that the inconsistent findings regarding group size and the extent of free riding may represent specific group characteristics and institutions, which either compensate for or aggravate particular group weaknesses (Poteete and Ostrom, 2004). For example, large groups may face greater enforcement costs, but they also have access to more resources (Poteete and Ostrom, 2004).

Another factor that is expected to make collective action more difficult is group heterogeneity, either social, economic, or ethnic. Mancur Olson was primarily concerned with the exploitation of “the great by the small”, by which he meant those

⁵Like the World Bank projects in my study the participating villages were required to provide ten percent of the cost of the subproject. Unlike my the projects in my study these two projects were dedicated solely to improving rural water supplies and sanitation (Prokopy, 2009).

with lesser interest would free ride on those with greater interest in the collective action (Olson, 1965). Others argue that group homogeneity makes for more predictable interactions leading to greater trust among participants promoting collective action (Poteete and Ostrom, 2004). Some have argued that when great interest coincides with wealth, free riding by the poor on those with more resources would not be a negative problem for collective action, particularly in the case of the provision of public goods (Mansuri and Rao, 2004). While group heterogeneity can challenge collective action, group institutions can be developed which can compensate for this challenge up to a point (Poteete and Ostrom, 2004).⁶

Other challenges to the idea that collective action will fail due to free riding and the tragedy of the commons have to do with the fact that collective action is often a repeated game. Game theory has shown that in infinitely repeated Prisoner's Dilemma games, in which the participants have perfect information instead of cheating, people cooperate (Platteau and Abraham, 2002). Common sense confirms this logic. In a small community, people generally have good information regarding the actions of others; community members interact repeatedly, and reputation and the ability to sanction members matter greatly. For example in one village in rural Karnataka, India in which festivals took on the characteristic of a public good, members contributed generously (about 15 percent of their annual income) and as such the festivals were much larger than what would be predicted by traditional theory (Rao, 2002). It turned out that those who contributed more toward the festival not only gained by enjoying the festival but they also received benefits in terms of lower food prices, invitations to eat at other community member's homes and an elevated social status.

⁶Group heterogeneity also comes up as an aggravating problem in elite capture.

Sen provides another challenge to the idea that group members will most likely default to free riding due to an attempt to maximize their gain (Sen, 1977). In fact, people may hold other values along with that of maximizing their personal gain (and with respect to public goods, some might find that maximizing their personal gain and acting upon their other values go hand in hand). These other values Sen calls commitments (Sen, 1977). The idea of commitments, or in economic terms, some degree of altruism is not present in the new institutionalist conception of collective action.

Free riding can be theorized in terms of consumption or production activities (Olson and Cook, 2006). In the example of public goods or of common pool resources, the free rider problem is understood as a consumption activity. Here members will overuse the good or resource to maximize their personal gain and is framed in terms of excludability of the good or resource. On the other hand, in collective work in cooperatives or in livelihood projects, the free rider problem is one of productive activity. In this case, the problem presents itself in terms of shirking, due to the difficulty of monitoring effort and measuring the marginal contribution of each individual (Olson and Cook, 2006).

In terms of productive goods, the excludability of production varies by the institutions of the group. In groups with fewer formalized institutions the ability to monitor marginal effort/contribution may be reduced to either classifying the member as a participator or as a non-participator. The participator is recognized by the group as such and by themselves. They may shirk or even fail to show up for the collective work to varying degrees. The production is then divided among the participators regardless of the total effort they contributed to the production.

Free riding in CDD subprojects can be observed in both consumption and production activities. In the example of public goods or of common pool resources, the free rider problem is understood as a consumption activity. In this case, members

overuse a good or resource in order to maximize personal gain and is framed in terms of excludability of the good or resource.

Interestingly in the literature on CDD, free riding as an issue to be overcome is rarely broached unless we turn to common pool resource management, in which it plays a central role. This can be understood because free riding is thought of as a problem of the excludability of a good. Common pool resources function as a public good and, while rivalrous, they are almost purely non-excludable and thus the problem of free-riding is obvious. Yet, in CDD activities, which require extensive collective action, both free riding and community institutions to address free riding should plausibly exist. This dissertation documents such existence.

CHAPTER 3

ELITE CAPTURE: SOURCES OF POWER

3.1 Introduction

Elite capture is a pervasive problem confronting CDD projects (Mansuri and Rao, 2012). Elite capture occurs when project funds are controlled by an elite, often not reaching those for whom they are intended. Elites can be defined along a variety of lines including income, power, and education.

Agrarian culture in Brazil has and continues to depend on extensive land and power inequalities between large landowners, small-holders, and landless workers leading to a history of patron-client relationships in rural areas. Interviews and technical documents provide evidence that the SJII subprojects were influenced by local-level politicians. As the SJA subprojects follow similar rules and processes, it raises the question of whether clientelism or other sources of power also resulted in elite capture. In the context of the SJA subprojects, clientelism can occur when politicians trade projects for votes — sometimes resulting in non-targeted communities receiving projects.

Was elite capture a problem for the subprojects in my case studies? My hypotheses were the following:

1. Elite capture would not occur via clientelism, in which politicians assisted non-targeted communities in receiving subprojects, due to the involvement of the MST in the process of choosing the communities.
2. An elite would not exist in the communities based on income, or power stemming from education, background or leadership position because these were

agrarian settlements. As there was little inequality, such elite capture within the communities would not occur.

In order to test these hypotheses, I first identify if the communities that were the official targets of the program were the ones that received the projects. I then evaluate other potential sources of elite capture: power differences stemming from inequalities in income, education, background, or access to leadership positions. To answer these questions, I implemented a census survey in six of the settlements. The survey measured income, assets, and collected information on education, leadership opportunities, and the backgrounds of the settlers.

I found that the targeted communities did receive the subprojects. In addition, clientelism was mitigated by the settlers and the MST. Almost all settlers come from an agricultural background, and the majority are from the same municipalities as the settlements, and almost all are from the state of Ceará. Furthermore, most settlers have the opportunity to participate in leadership positions. However, I did find moderate income and asset inequality, and generational differences in education within the communities.

Even given moderate income and education inequality, I found no evidence of elite capture in my case studies. Most settlers had participated in the subproject meetings, the creation of the subproject, and work on the subproject. The majority of those who had decided not be part of the subproject did so because of time constraints or entering the settlement after the subproject was implemented. The majority of the settlers affirmed that the subproject was good for the community and made no comments indicating elite capture.

This chapter is organized as follows. The background section gives a theoretical overview of elite capture and the typology I use. The third section examines the existence of elite capture via clientelism. The fourth section evaluates the existence of

inequality of income, education, and background. The fifth section evaluates whether elite capture may have occurred. The sixth section concludes.

3.2 Inter-community Elite Capture and Intra-community Elite Capture

Elite capture can occur between communities or within a community. I refer to these as inter-community elite capture and intra-community elite capture. Inter-community elite capture occurs between communities when funds are diverted from a targeted community to a non-targeted community because of interference by an elite.¹ Inter-community elite capture can often be a result of clientelism. Elite capture would be apparent if non-targeted communities received projects. Intra-community elite capture occurs when members of the community, generally an elite, take funds or the results of the subproject disproportionately from others within the community, particularly from the targeted. Elite capture would be apparent if a subgroup of the community were to appropriate the benefits of the subproject based on their relatively greater income, education, or power. In the SJII project, communities were targeted on the basis of poverty, rural livelihoods, and access to land to implement an infrastructure or productive subproject. SJA further restricted targeting to only agrarian settlements. In the SJA project, all settlement members were equally targeted.

CDD projects emphasize a devolution of power from central government to the local government (in my case studies this was from the central to the state government). Optimally, decentralization creates local spaces that are more responsive to local constituencies' demands. Yet, it can also foment local level clientelism. Characteristics of clientelism include inequality between the patron and client (which allows

¹Of course, there are many reasons why funds may be diverted to a non-targeted community. These include being located closer to the funder, being off roads that are more accessible, and being a community that is already networked into a funding agency (Chambers, 1983).

for threats of coercion), reciprocal exchange, and a personal relationship (Mainwaring, 1999). Brazil has a long history of deeply entwined practices of clientelism (Mainwaring, 1999). As such CDD projects in Brazil are particularly susceptible to clientelism. While inter-community elite capture could occur for a number of reasons, in the context of Brazil, a very likely source is clientelism.²

The ability to influence one's support based on subproject provision allows politicians to exchange subprojects for votes. Manacorda et al. studying a Uruguayan randomly targeted social transfer program (Plan de Atención Nacional a la Emergencia Social, PANES), found that those who received the transfer were more likely to support the incumbent party at the national level by 11 to 13% (Manacorda et al., 2011). Schady studies the Peruvian Social Fund, FONCODES (Fondo de Cooperación para el Desarrollo Social), and finds that FONCODES expenditures went up before national elections and were directed toward provinces where it was expected to have the most impact on the elections, although it did go to the poorest districts (Schady, 2000). Several studies have also found a similar effect at the local level leading to the predictable conclusion that decentralization emphasizes the importance of local elections (de Janvry et al., 2009; Chamussy, 2001). For example, de Janvry et al. found that greater decentralization of a social investment fund (which became a CDD project) in Zambia led to greater participation in voting, where the majority candidates who received more votes were able to bring more projects to their wards, and the incumbent party councilor from those wards that received more projects also received more votes (de Janvry et al., 2009). This decentralization had the positive result in that it was pro-poor at both the national and the local level, although it had a greater impact at the local level (de Janvry et al., 2009).

²Of course, clientelism is not restricted to inter-community elite capture and can also occur within communities (intra-community), but in my case studies the settlements are small enough and equal enough that there is no one within the settlements with sufficient power to be considered a patron.

Clientelism becomes problematic when the exchange of subprojects for votes results in the non-targeted receiving subprojects, which can contribute to both greater inequality and greater inefficiency as resources are used for the short-term goal of (re)election (Mansuri and Rao, 2012; Camacho and Conover, 2011). Camacho et al. found a targeting instrument, the Census of the Poor, used by a variety of Colombian social welfare programs was being manipulated around local mayoral elections (2011). At the outset, local politicians surveyed more people around election time than other times as many people thought that being surveyed qualified them to receive the program. As time went on people discovered this was not the case. The algorithm for how people were chosen was released and, as a result, Camacho et al. identified an increase in false entries at the threshold aimed at including more people in the program. This occurred more often when there were close elections. The authors estimate that three million people (of a country of 40 million), or 33 percent of the beneficiaries, had their scores changed. This has significant consequences for the poorest portion of the population who may have been displaced from the program (Camacho and Conover, 2011).

Additionally, clientelism can be seen post-election when programs or services are awarded to those who most support the political candidates. For example, Finan studying clientelism in Brazil, created a database of both political and municipal variables spanning the years 1996 to 2000. He finds that those municipalities that were supportive of an elected deputy (for example, had a 10 percent increase in vote shares) were (44 percent) more likely to receive public works (Finan, 2004).³ These examples intertwine clientelism, elite capture, and corruption.

Intra-community elite capture has also been well documented in the CDD literature. Yet, the literature is not conclusive on whether intra-community elite capture is

³Deputies can request amended budgets in their municipality for public works (Finan, 2004).

entirely negative. While some studies have found that it makes those targeted by the project worse off, other studies have found the effects to be neutral or even positive. One of the main factors that creates the space for elite capture to occur is the level of intra-community inequality. Communities can be heterogeneous and unequal, not only in income but also in power, which is often understated (Mohan and Stokke, 2000). In addition to intra-community inequality, the design of CDD projects also makes them vulnerable to elite capture, as it relies on access to information and a range of skills the poorest may not possess (Dill, 2009). This host of needed knowledge and skills lends itself to co-option by those with more power, and sometimes precludes projects reaching those most in need.

A study of community-based participation in Dar es Salaam, Tanzania found that the structure of decentralized participatory development projects had further marginalized the poor (Dill, 2009, 17). Dill contends that these projects dis-empower the poor rather than empower them by legitimizing locally exclusive or captured organizations and presenting them as serving the poor (Dill, 2009, 17). Rigon presents a case study of a slum upgrading project in Nairobi, in which the elite was able to dominate the process in a way that excluded the poor from many of the benefits (Rigon, 2014). In a meta-case study of more than six African countries, Crook finds that local elites often control decentralization funds and do not direct these funds in the interests of the poor (Crook, 2003).

Platteau and Gaspart conducted an interesting case study in West Africa where an NGO was working with a local community association funding investments through the association (Platteau and Gaspart, 2003). They saw there was a redirection of resources toward the leader of the association, including through falsifying accounts. When the leader was brought before the community, they did not punish him and re-elected him in opposition to the NGO's demands. According to the authors, the community accepted such corruption on the basis that they were better off than if

they had never received the funds and that they would not have received the funds without the leader (Platteau and Gaspart, 2003).⁴

The qualifiers preceding and following the term, elite capture, reflect the difficulty in categorizing elite capture as entirely negative. Mansuri and Rao write of pernicious elite capture and benevolent elite capture reflecting the fact that elite capture does not always have a bad outcome (Mansuri and Rao, 2004). Dasgupta and Beard divide elite capture into elite control of funds versus elite capture of funds (Dasgupta and Beard, 2007). In elite control of funds, the funds benefit the targeted group. In the elite capture of funds, the funds do little to benefit the targeted group. Fritzen also adopts this division after finding that elite capture does not necessarily have negative effects (Fritzen, 2007, 21).

Studies showing beneficial elite capture have found that, although the process of community development was heavily infiltrated by elites, the results were approved of by the community at large (Mansuri and Rao, 2004; Dasgupta and Beard, 2007). For example, in a case study of the Jamaican Social Fund it was found that, although there was evidence of elite capture by educated connected groups for projects that had not been ranked as a priority by the majority of the community, after the fact 80% of the people were satisfied with the project and wouldn't change the project (Rao and Ibanez, 2005, 33). Interestingly, it seems in some cases either what is good for the elite is good for the community, or in some cases the elite are community leaders and prioritize the needs of the community.

Dasgupta and Beard divided collective action into two types: collective action which is good at creating and delivering public goods and services, and collective action which challenges elite power (Dasgupta and Beard, 2007). Their first type of collective action depends on community homogeneity, small size, and stability,

⁴This is an example of intracommunity clientelism leading to elite capture.

which allows the community to work more easily together and come to a consensus. Dasgupta and Beard find that these characteristics facilitate elite capture and increase the community's difficulty in escaping elite capture. The second type of collective action relies on the dispersion of power, a diverse community, as well as active social and political processes. In Dasgupta and Beard's analysis, this type of collective action can challenge and redefine power relationships, as well as create structural change and make elite capture harder. A group which has built strong 'social capital' can also use this power to limit elite capture (Manssouri and Sparacino, 2009).

3.3 Intercommunity Elite Capture

Clientelism is the main avenue through which inter-community elite capture would occur in the Brazilian context. Interviews at the state level with representatives of the SDA, MST, and FETRAECE revealed that the wider SJII project had encountered considerable difficulties with clientelism, but it was less of a problem in the SJA project. In fact, the newest incarnation of the São José project, SJIII, has been redesigned in an attempt to eliminate the problem of clientelism. SJII required that communities submit a written pre-proposal in order to apply for a subproject. According to one interview, clientelism occurred in the following way: Often the communities, in which only the youngest generations were literate, had difficulty writing the pre-proposal; they frequently also lacked access to a computer necessary to prepare the subproject proposal; politicians would then offer to help communities develop the subprojects in exchange for votes (FETRAECE Representative B, 2013).

At the settlement level in the SJA project clientelism was less of a problem. In part, clientelism was mitigated by the accompaniment of the Landless Workers Movement and by the settlers themselves. First, the settlements that received the subprojects were those who had members who had participated in demonstrations to receive SJII funds. In some cases upon the release of the SJA subprojects, politicians

would show up and attempt to take credit for the subprojects. The settlers, with the backing of the Landless Workers Movement, refused to accept that the politicians deserved credit (and votes) for these subprojects. One Landless Workers Movement representative described it this way.

In order for you to note the magnitude of the norm [clientelism], how deep-seated it is, many politicians and municipal administrations went to the radios to say that the [sub]projects that had arrived in the municipalities, the São José [Sub]Projects, had been an achievement of the politicians, of their policies. But the people respond[ed]. We had rallies in the inauguration of the [sub]projects to raise awareness that they had been the workers' achievement. [We raised awareness] that the struggle [for the subprojects] was worth it, that we struggled and that you could see the result. On those occasions, the workers would say: "Look, this work here, this project here is the result of the organization of the worker. The only power here is the power of the struggle. Nobody did this for us" (Landless Workers Movement Representative A, 2013, Author's Translation).

... Para ver como o costume é tão grande, estava arraigado, chegou muitos políticos, alguns municípios irem para as rádios dizerem que os [sub]projetos chegados nos municípios, o Projeto São José, teria sido conquista dos políticos, de algumas das políticas. Mas, enfim, o povo responde a isso. Então, na inauguração dos [sub]projetos, porque a gente fazia ato político para garantir a conquista dos trabalhadores, fazer essa divulgação. Que a luta vale a pena, a gente luta e vê o resultado. Enfim, e aí os trabalhadores, nos momentos, diziam "ó, esse trabalho aqui, esse [sub]projeto aqui é a força dos trabalhadores organizados. A única força que teve aqui foi a força da luta. Não teve ninguém para fazer isso" (Landless Workers Movement Representative A, 2013).

An interview with a representative of the FETRAECE also mentioned another factor, which prevented clientelism in the SJA project. He stated that the settlements are difficult to penetrate for the politicians, he described them as "more closed off, more independent" (FETRAECE Representative A, 2013). In each settlement, I asked the settlers if they had a relationship with local level politicians or the state level politicians. Invariably they said no. When asked if politicians came to visit the settlement several mentioned that they might come right before elections, and then they would not see them again until the next election four years later. One settlement member told me the following parable, which he said illustrated the relationship between the settlers and the politicians.

Once there was a senator campaigning in the interior. He was struggling with his popularity, so he said "For me to get [re]elected, I need to campaign everywhere". He arrived at a woman's home in the middle of nowhere. He introduced himself, and while talking with the woman, noticed he was hungry. So he asked her if there was

Que uma vez andava um senador no interior atrás de voto, porque ele se achou assim já um tanto é quanto caído. Ele disse, "Agora para eu me eleger vou andar por todo canto". Aí foi chegou numa casa de uma moradora no meio da mata. Aí conversando com ela, se identificou, aí já vinha com necessidade de fome, já. Aí foi per-

anything to eat. She said, “No, we have already eaten lunch”. [The senator asked] “Don’t you have anything? You must have some eggs, right? At least cook [some eggs] for us to eat because we are hungry.” She said, “We have eggs.” [He responded] “Then put a half dozen on the fire.” So she cooked some eggs over the fire, and when it was time for the senator to pay he asked how much they were. She charged him quite a bit for the eggs. The senator found it expensive. So he said, “Ma’am, tell me, is it very difficult to produce eggs here? Why is it so expensive?” And she responded, “No, what is difficult is to get a senator to come around.” [The interviewee explaining] This is true. When the locals are in need, “it is difficult to get a senator to come around” (Settlement 7, Member 1, 2013, Author’s Translation).

guntou se ela não tinha alguma coisa para comer. Ela disse, “Não, a gente já almoçou”. [O senador perguntou,] “E tem alguma coisa, “mas não tem uns ovos, não? Pelo menos cozinha por aí para a gente comer que a gente está com fome.” Ela disse, “tem”. Aí “pois bote aí uma meia dúzia no fogo aí”. Aí ela botou uns ovos lá no fogo, aí quando foi cobrar ele perguntou quanto era. Ela cobrou lá e cobrou uma quantia boa pelos ovos. Aí foi, aí ele ficou assim achando que estava caro. O senador, aí disse assim “dona uai diz, é muito difícil o ovo aqui? Porque está caro desse jeito”. Aí disse, “não, difícil é um senador aparecer”. Porque é que nem ela aí quando eles estão precisando, “é difícil é um senador aparecer por aqui” (Settlement 7, Member 1, 2013).

This story illustrates the difficulty the rural agricultural poor in Ceará have in accessing politicians and highlights their lack of a personal relationship with them. It also indicates a certain frustration with trying to rally politicians attention for basic public services, such as decent roads, schools, water storage facilities, and education. Instead, the politicians rarely appear except before elections. When the participants came together under the banner of the Landless Workers Movement and won state investment in their settlements, the discontent expressed when the politicians attempted to take credit for this is easily understood. The participants in the SJA project challenged the politicians from a position of asymmetric power, in order to prevent the co-option of the projects into an exchange for votes. As such, it is clear that while clientelism is an embedded norm of the region, the SJA subproject participants in my study with the assistance of the Landless Workers Movement overcame this problem.

3.4 Intracommunity Elite Capture

How do we define the elite? As mentioned before the elite are generally defined against the targeted. The São José Agrário project was under the umbrella of the

World Bank Rural Poverty Reduction Project, which stated its targets as the following,

“The primary target population was the same for both projects. The original project targeted 120,000 poor rural families living mostly in remote, low-density areas with scarce infrastructure and services, deriving their main income from farming and/or agricultural wage labor as small-holders, tenants, share-croppers and landless laborers. The Additional Financing targeted an incremental 68,000 families with the same profile” (The World Bank, 2009, 2).

The main targets of this project were low-income, rural people. Thus, an elite would be middle- or high-income people living in an urban area. Other possible sources of elite power could include education, background, and access to leadership positions.

3.4.1 Income

The settlers enter into the settlements with few worldly possessions. In the past they have been agricultural wage workers, *moradores* (a type of share-cropper), or worked on their families’ land — often a small piece supporting many family members. They generally enter the settlement with little income. The settlements are divided in such a way that everyone gets access to an equal amount of land for their home and garden, as well as for their crops and livestock. Yet, differences in household income still appear, largely because the settlers or the settlers’ children take jobs off the settlement. Another source of income differences emerges from a household which receives two pension payments from the national government. Differences in income are largely apparent in the material goods the family owns — motorcycles, TVs, or cell phones. The close living quarters and the homogeneity of the settlements make a family’s lesser or greater income apparent.

I gathered income data for each family, including crops and animals sold over the 2012 year, transfer payments — including Bolsa Familia, and retirement payments for agricultural workers, and crop insurance, as well as any wage or salary labor on or off the settlement and donations from other family members not living in the settlement.

I then calculated the yearly income for the households. I compare this yearly household income with the household income data collected by the Brazilian government's 2011 household survey (PNAD, Pesquisa Nacional por Amostra de Domicílios). The Brazilian government divides income groups into five classes based on household (assuming a family size of four) average monthly income (which I converted to yearly income for ease of comparison): Class A (equal to or above R\$116,940), Class B (from R\$89,700 to R\$116,940), Class C (from R\$20,808 to R\$89,700), Class D (from R\$13,020 to R\$20,808), and Class E (from R\$0 to R\$13,020) (Centro de Políticas Sociais, 2011). Class C covers a huge range of almost 70,000 reais per year.⁵

Although the World Bank's Implementation Completion and Results Report of the SJII project does not explicitly list the incomes of those targeted, it does describe them throughout the report as the poor and very poor (The World Bank, 2009). Several studies of the WB project do list the beneficiary income. For example, a study conducted by FECAMP and financed by the World Bank attempted to measure income outcomes. This report stated the project had reached the very poor in that average household monthly income prior to the project was R\$499 per month (R\$6,000 yearly), and the average adult education was very low in that 77% had not received any instruction (The World Bank, 2009, 57). Another study conducted independently by the Federal University of Ceará, calculated annual beneficiary income before the SJII subprojects at R\$2,685 to R\$7,160 (The World Bank, 2009, 64). According to

⁵While the Real has recently depreciated, in the period of 2011-2013 the average exchange rate was around R\$2:USD1. As such the income classes (based on annual income) would be Class A (equal to or above USD 58,470), Class B (from USD 44,850 to USD 58,470), Class C (from USD 10,404 to USD 44,850), Class D (from USD 6,510 to USD 10,404), and Class E (from USD 0 to USD 6,510). The World Bank sets the poverty line at 1.90 per day in 2011 PPP terms (The World Bank Data, 2013), which is equal to 2.793 Reais per day or an annual per capita income of 983.14 Reais. For a household of four, this would be an annual income of 3,932.54 Reais. The poverty line for Bolsa Familia, the Brazilian government's welfare program, a family of four is considered very poor if they make 3,696 Reais or less per year and considered poor if they make between 3,697 Reais and 7,392 Reais per year (Camara Noticias, 2015). Nationally 13% of households fall into classes A and B combined, Class C makes up about 56% of households and Classes D and E combined make up approximately 31% of households (Assuntos Estrategicos, 2014).

these studies, on average the SJII project beneficiary households fall into the Class E designation.

In Table 3.1 I classify all the households from my survey implement in 6 settlements into each of the classes. I then compare the settlements by class. No settlement households fell into the A or B classes. The class with the most households from my survey was the E class (also the poorest class) with 55 households (59%). There was also a sizable portion that fell into the D class, 21 households (23%) and the C class, 17 households (18%). There is greater variation between classes in some settlements than others. For example Settlement 3 and 8 have members from all three classes, whereas Settlement 5 only has households in Class D and E. Table 3.1 indicates moderate income inequality in the settlements. The breakdown shows that eighty-two percent of the beneficiaries fell into class D and class E and may be considered poor or very poor. For the most part, the SJA subprojects in my case studies did reach those targeted by the greater SJII project as poor and very poor.

I compare this distribution with that of rural Ceará. I also use the Brazilian government's household survey, the PNAD survey, to get a measure of the income classes in rural Ceará, which includes a total of 3,532 households. Interestingly, Table 3.1 shows that if I take all households in my survey and classify them into the Brazilian government's income classes, the percentage in each income class of C, D, and E, reflects that of the rural Ceará.

I also calculated Ginis for both individuals and households. I find that the per capita Gini is between .33 and .47. Household Ginis fall between .32 and .57. These Ginis are useful in understanding the level of income inequality in these settlements.⁶ Overall the Ginis as compared with country level Ginis would indicate a moderate

⁶Compared with the overall inequality in Brazil as measured by the Gini, falling from .6 in 1993 to .53 in 2013 (The World Bank Data, 2013), the level of inequality found in the settlements is not particularly high.

Table 3.1. Income by Class

Class	Number					Percent				
	A	B	C	D	E	A	B	C	D	E
Settlement 3	0	0	1	1	10	0	0	8.3	8.3	83 .3
Settlement 4	0	0	1	5	4	0	0	10	50	40
Settlement 5	0	0	0	4	15	0	0	0	21	79
Settlement 6	0	0	2	1	7	0	0	20	10	70
Settlement 7	0	0	7	6	12	0	0	28	24	48
Settlement 8	0	0	6	4	7	0	0	35	24	41
All Settlements	0	0	17	21	55	0	0	18	23	59
Rural Ceará	7	3	607	853	2062	.2	.08	17	24	58

Author's Data and PNAD 2011 (Brazilian government's Pesquisa Nacional por Amostra de Domicílios).

to high level of income-inequality. Yet, if we refer to Table 3.1 above, we see that all household incomes fall into classes C, D and E. Those that did fall into the rather large range of class C, did so at the lower end. Thus, the income inequality in the settlements reflects levels of poverty, ranging from very poor to moderately poor/lower middle income. It can be misleading to compare these Ginis to country-level Ginis which measure income inequality between extreme wealth and extreme poverty. Yet, these Ginis are useful in identifying the variation in poverty within the settlements, which could potentially be a source of power.

Table 3.2. Per Capita Income Inequality by Settlement

Settlement	Min	Max	Median	Gini
All	92	16077	1741	.47
3	92	3683	630	.47
4	881	15476	2109	.42
5	680	3770	1610	.33
6	559	15750	1647	.47
7	668	10515	3103	.39
8	1010	16077	2770	.41

Author's Data. Reais per year per capita. Over 2013, the exchange rate was roughly two Reais to one US Dollar.

There has been criticism of using income collected by surveys as a measure of poverty, particularly in rural households. The problems range from issues of recall, seasonality, to the challenges rural households face, in that they often supplement their consumption through subsistence production, as well as relying on forests and

Table 3.3. Household Income Inequality by Settlement

Settlement	Min	Max	Median	Gini
All	918	48232	10776	.42
3	918	29468	2994	.57
4	3523	30951	1398	.32
5	2416	18850	7973	.34
6	2794	22927	9018	.34
7	1690	29930	15586	.36
8	5540	48232	15667	.33

Author's Data. Reais per year per household. Over 2013, the exchange rate was roughly two Reais to one US Dollar.

bodies of water to supplement consumption (Deaton, 1997, 29). In addition, people are often less willing to reveal income data as opposed to consumption data (Deaton, 1997, 29). Furthermore, survey data understates inequality as wealthier households are less willing to reveal their income as compared with lower-income households. Surveys that measure income via consumption will also under report wealthier households' income, as such households tend to save a greater portion of their incomes, which may not be recorded in such surveys. Also, wealthier households will save a greater portion of their incomes, and as such will not be reflected in consumption surveys.

For these reasons, I also collected data on assets. In particular, I concentrated on durable household goods as a check on my income data. Table 3.4 presents a breakdown of the number and percent of households from my survey that have a particular good. Some households have more than one of a good, for example, cell phones, fans, televisions, bicycles, and motorcycles. I list the number of families that have more than one in the table notes. Those assets that are of greater value and only held by a subset of the families indicate income inequality; cars, sewing machines, and washing machines. The main form of transportation was by motorcycle and bicycle. Around forty percent of my sample had a motorcycle. Together these make up some of the most expensive goods (excluding bicycles). It might seem that a freezer should also be included here, but many households who have a freezer do

not have a refrigerator and vice versa. Thus the freezer and refrigerator function as substitutes. The existence of some goods that only between six and thirty percent of households own indicates some asset inequality. In addition, there are some families that had more than one motorcycle (seven households have two motorcycles, and one household had three), also reinforcing my finding of some asset inequality.

Table 3.4. Durable Household Assets

Household Assets	Frequency	Percent
Cell Phone*	62	67
Stove	82	88
Refrigerator	86	92
Freezer	13	14
Blender	79	85
Fan*	59	63
Washing Machine	15	16
Sewing Machine	25	27
Satellite	66	71
Television*	86	92
DVD Player	66	71
Radio	81	87
Stereo	47	51
Bicycle*	72	77
Motorcycle*	56	40
Car	6	6
Truck	0	0

Author's Data. * Indicates that some households had more than one. Cell phones: 36 households had 1, 16 households had 2, 9 households had 3, 1 household had 5. Fan: 57 households had 1, 2 households had 2. Television: 84 households had 1, 2 households had 2. Bicycle: 48 households had 1, 15 households had 2, 5 households had 3, 4 households had 4. Motorcycle: 48 households had 1, 7 households had 2, 1 household had 3. I also asked about landlines and VHS players, but since no one had these, I eliminate them from the table.

My data paints a picture of the settlements as a place of moderate income and asset inequality. A significant portion of the moderate inequality of settler's income can be attributed to two factors. First, settlers who acquired jobs off of the settlement (particularly full-time non-agricultural positions) tended to have higher incomes. This is particularly true in the case of a drought. The second factor that increased some adults' incomes was receiving monthly pension payments from the government. The government sets this transfer payment at the minimum monthly salary for the region. In the case of the settlers in my study, often this minimum monthly salary was

significantly greater than what they were earning during the drought via agricultural production. These factors indicate that rather than a social or class-based hierarchy creating these differences in income in the settlements, what appears is demographic differentiation related to age and availability of off-settlement work.

3.4.2 Education

Education can also engender elite power, and as such, provide an avenue for elite capture. In the settlements I visited, education differed across generations. In general, schooling was correlated with age. I exclude all those under eighteen. Historically, in rural areas due to lack of transportation and a lack of rural schools, it was challenging to attend school. Over time, and particularly due to policies post-1995, access to education has increased. Brazil has implemented a variety of public policies supporting primary and secondary education. One of these policies, *Bolsa Familia*, provides a conditional cash transfer payment to families for each school aged child attending school. Additionally, there has been an emphasis toward expanding primary education in rural areas. These factors are exogenous to my study. Those with greater education are the younger generations, with a negative correlation between age and education. In Table 3.5 it is clear that the older generations were significantly less educated than the younger generations, in fact, many are illiterate. On the other hand, the youngest generations have much more education, including some post-secondary schooling. Most households are composed of several generations, as such, many households would include both adults who had achieved a primary education along with young adults with a secondary education.

I argue age, once we exclude those under eighteen, is a main determinant of education, and thus, should be a consistent explanatory variable across settlements. If this is true then even though there are differences in education, often these differences will be found within households. It would make little sense for the younger generations

Table 3.5. Education Differences by Generation: Years of Education

Age	0 years	1-4 years	5-8 years	9-11 years	Post-Secondary	Total
18-27	0	10	18	42	6	76
28-37	2	26	11	5	2	46
38-47	6	33	17	2	0	58
48-57	11	18	2	1	0	32
58-67	11	12	1	0	1	25
68-77	9	7	1	0	0	17
78-87	5	0	0	0	0	5
Total	44	106	50	50	9	259

Author's Data. Number of people in each age group with the given level of education, for those 18 and older.

to exclude the older generations from project benefits (as the older generations may be their family members).

Below I run two OLS regressions to check that age is indeed an explanatory variable controlling for gender, settlement in which the individual resides, and the education level of the head of household. My survey included questions on education, age, and gender for all household members, resulting in a total of 420 observations (in 93 households). Once I drop all people under the age of 18, I am left with 259 observations.

I drop those younger than eighteen, because in this group age will be structurally correlated with education. Individuals older than eighteen, but continuing in school either because they took longer or because they are attending post-secondary school would not drive my results. The hypothesis I test is increased age will predict less education. Those who continue in school would weaken support for my hypothesis.

My regression is the following

$$ED_i = \beta_1 + \beta_2 A_i + \theta_1 F_i + \delta_4 S_{4i} + \delta_5 S_{5i} + \delta_6 S_{6i} + \delta_7 S_{7i} + \delta_8 S_{8i} + \mu_i \quad (3.1)$$

where ED is education, A is age, F is a dummy variable for female, and S is a dummy variable for Settlements 4 through 8, with Settlement 3 as a baseline, i indexes individuals.

Table 3.6. OLS Regression Results Dependent Variable Education

Variables	Education (1)	Education (2)
Age	-0.154*** (0.011)	-0.199*** (0.030)
HOH Education		0.115 (0.138)
Female	0.938*** (0.351)	-0.020 (0.606)
Settlement 4	0.806 (0.677)	0.009 (1.098)
Settlement 5	0.506 (0.592)	1.952* (0.996)
Settlement 6	1.670** (0.714)	1.758 (1.150)
Settlement 7	-0.399 (0.567)	-1.185 (0.924)
Settlement 8	2.083*** (0.587)	2.601*** (0.801)
Constant	10.03*** (0.579)	11.907*** (0.912)
Observations	259	90
R-squared	0.526	0.539

Model 1 is an OLS regression estimating the effect of age on educational achievements of adults (age>17) with dummy variables for gender and settlement on which the person lives. Model 2 presents an OLS regression estimating the same as Model 1 but also controlling for the impact of the education of the head of household on educational achievements of individuals. Standard errors in parentheses, *** significant at 1%; ** significant at 5%; * significant at 10%.

I find that age is significant at the one percent level confirming my hypothesis that adult age and number of years of education are correlated (see Table 3.6). One additional year of age is correlated with 0.15 years less of education holding gender and settlement fixed. This is a particularly strong result as some young adults may still be in school increasing their education, which would weaken this relation. In addition, I find that being female results in 0.938 years more of education. Lastly, I find that being a member of Settlement 8 results in 2.083 more years of education and

being a member of Settlement 6 is correlated with 1.67 additional years of education relative to being in Settlement 3.

Belonging to a particular household may affect the results. In particular, the educational levels of the head of household may be positively correlated with the educational outcomes as parents with greater education may place a higher value on the education. In the second model, column two, I control for the head of household's educational level. I drop all people that are ten years younger than the head of household or older. This way I exclude the majority of extended family members such as aunts, uncles, or grandparents. I also drop all individuals younger than eighteen for the same reason as above. I am left with a significantly reduced and younger sample size of 90.

Overall, I find that the effect of the education level of the head of household has a positive but not significant effect on the educational levels of younger household members. The age of the individual continues to be strongly significant in predicting educational outcomes, one additional year of age is correlated with almost .2 years less of education. The coefficient for being female has changed signs. For women in this sample, gender has a negative but not statistically significant effect on education. There could be a qualitative difference between the education of older generations and that of younger generations. For older generations going to school and working in the fields were competing activities, in which male children spent more time working in the fields, and female children may have found it feasible to attend school for longer. Currently, education has expanded, and conditional cash transfers require children to attend school. As such, being female may not have a large effect on educational outcomes.

I find that differences in education are by age, gender, and occasionally by settlement. In particular, belonging to Settlement 8 had a robust statistically significant impact on educational outcomes. Settlement 8 had a strong affiliation with the lo-

cal municipal agricultural workers union and the Dom Helder project. The youth in this settlement had been particularly active, and some had either already had post-secondary education or were involved in post-secondary education. The municipal agricultural worker's union had also hired several of these young educated adults in various positions.

3.4.3 Background and Leadership Positions

Elite power can also originate from one's background or the ability to occupy leadership positions. In my case studies, most people came from similar backgrounds and almost all were involved in agriculture prior to the settlement. This is to be expected as an agricultural background is a requirement to join the settlement. Only one of the settlers previously worked as a small rural producer, who owned his own land. Five worked with their families on their families' land. All others were permanent or temporary agricultural workers, or were *moradores* on a landlord's land. In addition, the majority (79 of 93 who completed the survey) came from the same municipality as the settlement location.

Table 3.7. Types of Work

Type of Work	Number	Percent
Temporary Rural Wage Worker	20	22
Permanent Rural Worker	18	19
Small Rural Producer (less than 50 ha)	1	1
Worked as a relative of a Small Rural Producer	5	5
Morador	43	46
Other	4	4
NA	2	2
Total	93	100

Author's Data. Types of work people did. *Moradores* could be translated as a dweller on land they do not own with the right to produce a small amount of subsistence crops and to raise some small animals such as chickens. NA signifies not applicable, these were young people whose first jobs were being settlers.

The small size of the settlements, from 10 to 30 registered members, necessitates that almost everyone occupy a leadership position. In fact, 35% of the 93 surveyed currently held a leadership position. Positions are rotated every two to four years.

In many settlements, the president cannot hold the position for more than two terms consecutively. As such, the ability for an elite to occupy and hold leadership positions is difficult. While, those with more literacy, often the younger members, are more comfortable as president, vice president, and secretary, many people who are illiterate or who have a fourth grade or less education have also been successful at carrying out these jobs. In addition, the treasurer was often a position occupied by someone with little traditional literacy, but with numerical literacy. My data showed no evidence that background or leadership positions were sources of elite power in the settlements.

3.5 Discussion

The question remains, does the inequality in income or education indicate the possibility of elite capture?

Did the subprojects reach their intended targets? The main target of the SJA project were settlement members. Such a target implicitly assumes these settlement members will also meet the targeting objectives of the SJII project, which targeted the rural poor. In summary, the targets of the SJA projects were rural poor settlement members.

For the most part, the SJA subprojects in my sample met these targets. Only settlers received the projects. The settlers are by definition rural. The majority of recipient settlers were from Class D and E. The median income for four of the six settlements in which I conducted my survey falls into Class E. The median income for the other two settlements falls into Class D. Thus one could argue that on average the SJA subprojects in my study also met the income targets of the greater SJII project.

Yet, it must be noted that my section on income shows that there was moderate income inequality in the settlements, including households from the Classes C, D, and E. I posit this moderate income inequality represents a relative income elite and could

result in the power to manipulate the subprojects. The question remains whether the potential power was a source of actual power used to influence subprojects.

While there were significant differences in education, these were by gender and generation, characteristics that are present within most families, rather than being differences between families. Many households contain several generations. In my case studies, frequently families were related. It seems unlikely that those with more education would use that against those with less education in order to capture a subproject.

So we arrive at the question: Were the income elite within the communities able to ‘capture’ the project? Did the greater income of some members of the settlement allow them to benefit from the project more than other settlement members?

Ninety percent (63/70) of the households that were currently living on the settlement when the SJA subprojects were chosen wanted and voted for the chosen subproject. Of the seven households that wanted a different SJA subproject, six of them occurred in Settlement 5 which received an apiculture subproject.

Table 3.8. Participation in SJA Subprojects

Settlement	Number Participating/Total Households
Settlement 3	10/12
Settlement 4	10/10
Settlement 5	11/19
Settlement 6	7/10
Settlement 7	11/25
Settlement 8	17/17
Total	66/93

Author’s Data.

Seventy-one percent (66/93) of the households were participating in the SJA subproject during my fieldwork or had been participating when the subproject ended. Almost all eligible households began by participating in the subprojects. Table 3.8 shows the number of participating households of the total number of eligible households.

Settlement 5 had the highest portion of members who wanted a different subproject and one of the lowest participation rates.

Settlement 5 had initially wanted a different project while the majority had voted for the apiculture subproject. When the subproject was confirmed as an apiculture subproject, eight households left the subproject. The change of subproject was a result of a technician who heavily favored apiculture subprojects and convinced the settlement members to try this subproject.⁷ Further refuting that this might be a case of an inside settlement elite directing project choice in their best interests, Settlement 5 had very little income inequality. In fact, all households in this settlement fell into the income classes D and E (4 and 15 households respectively), the per capita income Gini was 0.33 and the household income Gini was 0.34, both at the low end for the settlements.

Settlement 7 had less than half the households participating in its subproject when it ended. This settlement did face moderate income inequality. But the high level of non-participation was in part a result of a high turnover of households in this settlement. In fact, fourteen households had joined the settlement after the subproject was put in place. This and the fact that the subproject was both short-lived and subject to many problems meant new households were not quick to join the subproject.

There were two main reasons the majority of the twenty-seven non-participating households gave for either their non-participation or attrition from the subproject. First, the household had joined the settlement after the subproject had been put in place and did not want to or were unable to join the subproject. Second, the household

⁷The technician may have greater education, income, and power than the community but it is helpful to separate out his influence from that of an elite. This technician did not direct the subproject to a non-targeted group, nor did he contribute to within group capture of the subproject. I present a further investigation into the roles and effects of the technicians in Chapter 5.

prioritized their production in crops and livestock over that of participation in the subproject. Table 3.9 details the reasons given.

Table 3.9. Reasons for Non-Participation in SJA Subprojects

Reasons for Non-Participation	Frequency
Entered the settlement after the project was put in place and did not want to join	9
Did not want to participate in the project due to time constraints	7
Did not want to participate in project because of collective nature	3
Did not want to participate in project because of distance	1
Did not want to participate in project because of fear of project	1
Not allowed to by rules of the project	2
Wanted a different project	1
Other	3
Total	27

Author's Data.

I also asked the question of whether subproject participants felt the subproject was good for the community. Of the seventy-three settlers who answered the question, sixty-one (84%) said that it was good for the community, and twenty (27%) said they did not know. When I asked the settlers to comment on their answer, many said that it was useful to the communities to gain access to such subprojects and that the subprojects began well. The many criticisms of the subprojects did not include any evidence of elite capture and mostly pointed toward technical failures.⁸ Of the twelve that did not feel the subproject was good for the community; half came from Settlement 6. Settlement 6's subproject was never implemented.

I do not find evidence to support the elite capture of the subprojects. The targeted communities received the SJA subprojects. Most settlement members voted for and participated in the subprojects. There were few differences in background and access to leadership positions within settlements. Differences in education were strongly correlated with age. Younger generations did not appear to be using their greater education levels against the older generations. Subproject outcomes also did not appear to be disproportionately benefiting one group over another. In the productive

⁸I explore this in Chapter 5.

SJA subprojects, as of yet, there had been little increase in production or output that could be appropriated by an income elite. In the case of infrastructure subprojects, the good is non-excludable. In my case studies, these were either reservoirs or fences surrounding the settlements. Within the settlements in my case studies, only the fences were completed, and all settlers had access to the fences.

3.6 Conclusion

In summary, I found communities to be moderately unequal in terms of income and assets. The income inequality that existed could be attributed to life-cycle deviations of household economic positions, based on permanent off-settlement jobs and pensions.

There were generational differences in education, controlling for gender and settlement. Education was valued, but not over practical and social knowledge. Democratic institutions of governance, open to all settlers, fomented participation. Many of the settlements had found ways for illiterate people to serve leadership roles, including the presidency. A common cultural background, ability to participate in leadership positions and decision-making, and a lack of political connections resulted in a fairly even distribution of power within the settlement. Educational differences did not exclude those with less education from leadership positions, participation in the subproject, or the ability to vote for the subproject.

Almost all settlers come from an agricultural background. Before joining the settlement, most had worked for others either as permanent or temporary laborers, *moradores*, or, occasionally, worked for their extended family who owned or who had access to a small piece of land. Additionally, most are from the same municipality as their settlement, and almost all are from the state of Ceará.

The SJA subprojects are embedded in much the same context as those of the SJII subprojects. The SJII subprojects experienced problems with elite capture, primarily

via clientelism (FETRAECE Representative B, 2013; Landless Workers Movement Representative A, 2013; Sao Jose Agrario Technician A, 2013). However, in the six settlements in which I conducted the census survey, each of which had one SJA subproject, I encountered no elite capture of funds. This outcome was the result of two factors. First, the subprojects were implemented in settlements, communities with a great deal of experience organizing themselves and a sense of internal leadership and independence. Second, the SJA project worked closely with the Landless Workers Social Movement. The MST assisted the settlers in rejecting local-level politician influence.

Elite capture is presented as a primary problem in the literature on CDD projects. As such, further investigation into these factors — community experience with organization and accompaniment by social movements — may be a fruitful avenue for creating and implementing CDD projects while preventing elite capture. The SJA project and the case studies here are of particular importance because they embody a particular set of characteristics that made them more likely to succeed. It would be inaccurate to generalize from these case studies to the larger SJII project (or perhaps even those SJA subprojects implemented on the larger settlements) because these experiences and institutions were specific to these settlements and framed their SJA subproject process and outcomes. Instead, the lesson provided is how these settlers overcame problems of elite capture, prevalent in the greater SJII subprojects, and according to the literature, in many other CDD projects.

CHAPTER 4

FREE RIDING: A QUESTION OF INSTITUTIONS

4.1 Introduction

The community-driven development literature has been primarily concerned with elite capture and the over-use of resources in common pool resource (CPR) projects. There has been little analysis of the free rider problem with respect to productive and infrastructure subprojects, which do not require the management of common pool resources (CPRs). Yet, the fact that community-driven development projects are products of collective action necessitates the evaluation of if and how problems of free riding may affect these projects.

Theories of public goods provision led to Mancur Olson’s in-depth analysis of collective action, identifying mechanisms by which collective action could fail (Olson, 1965). Free riding (or in Olson’s words “the exploitation of the great by the small”) was identified as a main challenge to successful collective action (Olson, 1965, 3). The free riding problem can be defined as a situation in which individuals of a population either consume more than their share of a resource or pay less than their share of the cost of a resource. Elinor Ostrom showed in her Nobel prize-winning work on common pool resources that there are a variety of ways in which communities can overcome the free riding problem (Ostrom, 1990).

My case studies indicate that free riding may challenge CDD project success. For example, the overall settlement structure, which relies heavily on collective action, has repeatedly struggled with free riding. As CDD projects continue their trend toward supporting productive subprojects over infrastructure subprojects they will encounter

a greater need for collective action over longer time horizons, creating more openings for free riding to occur.

The São José Agrário project occurred within a specific institutional environment, that of a land reform settlement. The settlements in my case studies have continuously carried out collective work on multiple levels for at least ten years. This experience has allowed the communities to face problems, create institutions and refine these institutions to deal with those problems. These institutions can also benefit SJA subprojects. As a result, it is useful to evaluate the existence of free riding in the settlement's collective work to cast light on the experiences of the SJA subprojects, particularly since the SJA subprojects are young and many have failed.

São José Agrário subprojects have encompassed both infrastructure and productive subprojects. Infrastructure subprojects require intensive labor during their implementation but thereafter the labor required for maintenance often falls under the settlement's collective work and therefore becomes subject to the settlement collective work rules. When free riding is present in the established settlement collective work it will also be present for the SJA infrastructure subproject work in the Operations & Maintenance Stage.¹ Since infrastructure subprojects are primarily non-excludable, for example, a reservoir for the settlement or fencing the boundary of the settlement, shirking could occur either in the implementation or the maintenance stage.

Productive SJA subprojects require years of ongoing labor following the implementation stage and often this labor does *not* occur during the settlements' collective work. This ongoing SJA labor opens space for free riding to exist in the SJA projects. Participation in the productive SJA subprojects is voluntary. Participants can decide to leave the subproject, or they can be excluded from the subproject if they do not do the work. Yet, there is still space for people to shirk, the magnitude of which

¹See Table 4.4 and 5.4.

depends on the enforcement of the rules and the strength of the institutions of the settlement.

These considerations led me to the following question. Was free riding a problem for the São José Agrário subprojects? My hypotheses were the following:

1. If free riding presented a problem in settlement collective work it would also do so in the SJA subprojects.
2. The bottom-up characteristics of the SJA subprojects would facilitate the creation of strong, locally specific institutions to preclude free riding.
3. Free riding would be mitigated by the presence of the Landless Workers Social Movement and the Agricultural Workers' Union because they would further support strong institutions preventing free riding.

I found evidence that free riding presented a challenge to the settlements' collective work and, to a lesser extent, the SJA subproject work. All settlements in my study had dealt with free riding to some extent. Of the eight settlements in my study, seven had, to a greater or lesser extent, effectively dealt with free riding in settlement collective work. By contrast, free riding was present and unresolved in several of the productive SJA subprojects. Still, my data indicated that in settlements where the settlement collective work operated well, it was more likely SJA subproject work functioned well for both productive and infrastructure subprojects. Solving problems of free riding depended on the collective institutions of the community, such as the association and collective settlement work. Free riding was also alleviated by the accompaniment of the settlements by the MST, municipal agricultural workers labor unions, and state and national government.

This chapter is organized as follows. In the next section, I review the relevant literature and provide background for the chapter. In the third section, I present an overview of collective work on the settlements. In the fourth section, I review the

extent and the characteristics of free riding present in the settlement collective work. In the fifth section, I provide an overview of collective work in the SJA subprojects, and in the sixth section, I review how free riding existed. In the seventh section, I discuss the results and in the eighth section, I conclude.

4.2 Background

Free riding is rarely broached in the literature on community-driven development unless we turn to common pool resource (CPR) management, in which it plays a central role. This can be understood because perhaps the primary problem of managing CPRs is *The Tragedy of the Commons*, a type of free riding problem. Common pool resources, while rivalrous (subtractable), are almost purely non-excludable and thus the problem of free-riding is obvious. In addition, Elinor Ostrom's acclaimed theoretical work, built on extensive case studies of common pool resource management, paved the way for other scholars to take up the free riding question in the context of CPRs (Ostrom, 1990).

Free riding can be theorized in terms of consumption or production activities (Olson and Cook, 2006). In the context of public goods and common pool resources, the free rider problem can be thought of as a consumption activity, in which the challenge is in either providing an optimal amount of the public good for public consumption needs or preventing the over-consumption of common pool resources.

Public goods are both non-excludable and non-rivalrous (not subtractable). The free riding problem for public goods is first, obtaining the necessary revenues from consumers to provide the public good' at a sufficient (optimal) level. Consumers consume the entirety of the public good regardless of how much they contribute toward the public good, for example breathing air, visiting a park, or benefiting from national security. Thus, their incentive is to minimize their contribution and to understate their 'true' preference for the quantity and quality of the public good so

as to reduce their tax burden (McMillan, 1979). Consumers maximizing their well-being assume the good will only be slightly deteriorated by their free riding on the contributions of others (McMillan, 1979).

Common pool resources are non-excludable, but they are rivalrous. As Hardin mentioned, this is the reverse of the problem with public goods (Hardin, 1968). Members share only in a portion of the cost of the overuse to the CPR but receive the total benefit. Thus, members have an incentive to over-use (over-consume) the good for their short term gain resulting in the degradation of the resource (called *The Tragedy of the Commons*).

On the other hand, employees and managers in capitalist firms and collective workers in cooperatives face a free rider problem based in productive activity. Here people may shirk by under-providing effort in the firm or cooperative. This occurs because of the difficulty of monitoring effort due to the challenge of measuring the marginal contribution of each individual (Alchian and Demsetz, 1972).

In the eight cases I studied, the subprojects had the goal of either the production of a local-level public good, common pool resource, or a shared private good. The subprojects were defined by the Department for Agrarian Development and the World Bank as either infrastructure subprojects or productive subprojects. Infrastructure subprojects included reservoirs and perimeter fences for settlements. Both perimeter fences and reservoirs are non-excludable. A perimeter fence surrounds the whole community keeping all settlement livestock in and all other livestock out. Similarly, reservoir water is available to all settlement members. The fence is also clearly non-rival, use by some settlement members does not preclude use by others. The water existing in the reservoir is rival. The quantity and quality of the water depend on the size of the settlement, and on additional factors outside the control of the settlement, such as other populations' access to the reservoir, pollution from nearby towns, and the severity of drought. Thus, the perimeter fence has the characteristics of a local-

level public good, and the reservoir has the characteristics of a common pool resource. Free riding challenges to collective action in the context of these two goods could potentially occur in their construction and in their maintenance, both of which the whole community was expected to take part in and of which it would be very difficult to exclude members (Mansuri and Rao, 2012). As such, it is important that everyone affected by the subproject participates in the subprojects' creation, implementation, and maintenance in order to prevent community members from benefiting from the subproject without bearing their share of the costs.

Productive subprojects included irrigation, bee-keeping, tractors and crops. These goods are both rival and excludable; as such they have the characteristics of a private good. The good is excludable in that the community can exclude members from receiving either the physical good or the money from the good in the event of non-participation. The good is also rival: if one person received a part of the money or good, the next person would receive that much less. Subproject rules allow for subproject members to freely exit subprojects, but they are not allowed to rejoin. Subproject rules also allow the group to exclude members from a subproject if they fail to participate. While seemingly this would eliminate the possibility of free riding, these rules rely on the group institutions, leadership, and cohesion. As these private goods are produced, appropriated, and distributed collectively, the excludability of the outcome of production (either the good itself or the money derived from the good) varies by group institutions. In groups with institutions that do not have graduated sanctions, a person may fall into only one of two classifications: a participant or a non-participant. The production is then divided among the participants regardless of total effort contributed to the production. Yet, participants may shirk or even fail to show up for collective work in varying amounts, free riding on the labor of others. In the absence of graduated sanctions, it may seem overly strong to exclude a participant for small transgressions. In addition, it might be politically costly to

exclude free riding participants from the subproject. Lastly, the method by which to exclude participating members may not have been defined prior to the subproject adequately to enable the community to enforce such exclusion.

Ostrom in her seminal book *Governing the Commons* has listed important design principles for successful collective management of common pool resources. First, it must be clear who has access to the resource and who has a right to use the resource. Second, the rules regarding the appropriation of the resource, and the rules outlining who and how much is provided by the members when there is a need, must reflect local conditions and means. Third, the majority of the people participating in the use of the resource can affect the rules. Fourth, the community must have active monitors who are accountable to the community that uses the resource. Fifth, there should be graduated sanctions so the gravity of the offense can be taken into account. Sixth, there must be conflict-resolution mechanisms that are both accessible, rapid, and low-cost. Seventh, the external government must recognize the rights of the community to create and implement rules, as well as to monitor and sanction members, and must not challenge the community's rules. Eighth, all design principles must exist as 'nested enterprises' in that these rules are nested within the local, regional and national governments to some extent, as well as within the community itself (Ostrom, 1990, p.90).²

Perhaps two of the above design principles that seem most important for restricting free riding in my case studies are those of monitoring and sanctions (or punishment). Game theory has found that when participants are given the means to punish free riders they will do so even at cost to themselves (Bowles and Gintis, 2006). Experimental evidence has found reciprocity and fairness to be present in pub-

²Interestingly, many of the institutions Ostrom lists to confront free riding seem to reproduce those of a central, state, and municipal government, just at the increasingly more local level. As Cleaver writes, "A paradox surely, when part of the justification for participatory approaches is that they avoid the shortcomings of development delivered by state bureaucracies" (Cleaver, 1999, 601).

lic goods games, in which players (in the absence of the ability to punish other players for non-contribution) will reduce their own contributions in either disappointment or retaliation (Andreoni, 1995; Ostrom, 2000). Thus, free riding begets free riding and, in the context of a community-driven development project, could lead to complete attrition from subprojects. This is particularly the case when systems of punishment are not working sufficiently well or are absent.

4.3 Settlement Collective Work

The São José Agrário subprojects occur within a specific institutional environment, that of a land reform settlement. The settlements in my case studies have carried out collective work continuously on multiple levels for at least ten years. The longevity of the settlements' collective work underlies the institutions of the SJA subprojects. Often work done on the SJA subproject is completed during the settlement collective work time, and as such, is subject to the settlement collective work rules. At other times, SJA subproject work is completed separately from settlement collective work.

Collective work occurs in many areas of the settlement. It occurs in the association that manages the settlement. It also exists as a set period of time per week with the directive of maintaining the basic infrastructure of the settlement. In addition, settlements may have collective crops and livestock, and collective projects, such as the SJA subprojects.

I concentrate the discussion of collective work and free riding into two main areas: the collective work mandatory to the SJA subprojects, and the collective work on the settlement mandatory to being a registered settlement member. Both the infrastructure and the productive SJA subprojects are a labor of collective action and collective work from beginning to end. All work done on the SJA subprojects is collective work, for this reason, I call it SJA subproject work instead of SJA col-

lective subproject work.³ Settlements also require mandatory collective work of the settlers — primarily around maintenance of the settlement. For example, settlement collective work includes repairing roads, fences, and community buildings. I call the former, **SJA subproject work**, and the latter, **settlement collective work**. SJA subproject work sometimes overlaps with settlement collective work, making it important to study settlement collective work when evaluating SJA subproject work. Such overlap primarily occurs in the case of an infrastructure subproject. For example, once the SJA fence was finished in Settlement 2, repairs on the fence occurred during the work time set aside for settlement maintenance work, rather than in addition to such work. The institutions of the settlement collective work frame those of the SJA subproject work. Settlement collective work institutions have been around for longer than SJA subproject work institutions. They are often formalized in the settlement documentation, and they show greater robustness to problems than do SJA subproject work institutions. Registered settlement members are required to participate in settlement collective work but are not required to participate in the SJA subproject work. Some participants in the SJA subprojects are not registered members of the settlement.⁴ They are required to participate in the SJA subproject work if they are subproject members but not the settlement maintenance work.

When settlements are established, settlers meet in a general assembly and decide on the format for collective work. An association formalizes the rules for collective

³The exception to this is SJA subprojects which have been essentially privatized. For example, Settlement 4 decided to produce *capim*, a feed for cattle, as one of their SJA subprojects. They dedicated one field to *capim* production. They then divided up the field among all participating members, such that each member was responsible for their portion of *capim* production. If a member did not have cattle, they could sell their production to another member. If they decided not to continue producing, they could leave the subproject with no repercussion on the other members.

⁴They may live on the settlement as relatives of the settlement members, accepted by the community, but officially squatters. They do not have the ability to participate in the settlement general assemblies, vote, hold office, or run livestock. They do not have the same rights and obligations of the registered settlement members. They were allowed to participate in the SJA subprojects because the subprojects, although they targeted land reform settlements, were not restricted to only registered settlement members.

work in a written set of guidelines, put forth in the settlement bylaws (*Regimento Interno*). The bylaws outline the frequency of collective work, what type of work is included, and the sanctions for non-participation in collective work. Generally, settlement collective work is mandatory. The design of the settlements, in which the land is held in common, necessitates collective work in order to maintain infrastructure that is not specific to any one individual.⁵

An association is legally recognized by the state and represents the registered settlement members. It has a directorship with a president, vice president, secretary, vice secretary, treasurer, vice treasurer, several community member advisers, and committees. All registered members have a chance to be elected to serve on the association's directorship. Generally, voting rights are allocated to the registered members — the head of household and the spouse. There are general assembly meetings at least once a month, and additional meetings as necessary, at which decisions are voted on by all registered members.

We have settlements that have families who enjoy participating in the collective, but in all, almost 100 percent of the settlements, the bylaws are needed for the [collective] work. They have bylaws ... and the bylaws delineate the [collective] work, and the punishments for the people who do not participate, etc. We have settlers who do not participate, who can be punished by losing the right to participate in the projects. It is their [settler's] right not to participate, but the question of responsibility exists. ... We have work today that depends on the collective, for example, the fences. ... So we have work that has to be collective, you can't deny the need for collective work (Landless Workers Movement Representative C, 2013, Author's Translation).

Nós temos assentamentos que tem famílias que gostam de participar do coletivo, mas todos, quase 100 por cento dos assentamentos, o trabalho é junto ao regimento interno. Tem o regimento ... e é o regimento que diz como é que é o trabalho, quem não participa, como é que ele é punido, e assim por diante. Nós temos assentados que não participam que podem ser punidos até para não ter direito aos próprios projetos. É direito dele, não é obrigado a participar, mas existe a questão de responsabilidade ... temos hoje trabalhos que necessitam do coletivo, por exemplo, as cercas. ... Então tem trabalho que tem que ser coletivo mesmo, não pode correr do coletivo (Landless Workers Movement Representative C, 2013).

The type of work considered collective and the amount of time dedicated to it vary from settlement to settlement. Even so, there are commonalities between settlements.

⁵Further accentuating the need for collective work is the absence of the government (municipal, state, or federal) in providing or maintaining services.

Collective work is primarily male and targeted toward settlement maintenance, such as fixing fences, maintaining roads and collective buildings, as well as dealing with any emergent problems. Additionally, collective work on crops, livestock, or subprojects can be included in the settlement collective work time. The amount of time dedicated toward settlement collective work varies but is often decided in terms of a certain number of hours per week. If a person cannot participate in settlement collective work because of illness or another reasonable excuse, as decided on by the community, they are excused. For all other reasons, when a person is unable to participate in settlement collective work, the first option is to send a family member in their stead, or, occasionally a paid worker. Lastly, if they do not have a sanctioned excuse, a family member, or a paid worker to fill in for them, they must pay a fine equal to the missed day's work.

Table 4.1. Settlement Collective Work Rules

Settlement	Settlement Collective Work	Sanction
Settlement 1	One 8 hour day per week, includes work in cashew fields. During the cashew harvest they work more hours.	Fine R\$20
Settlement 2	When needed, no set day or time.	Fine R\$20
Settlement 3	One 8 hour day per week. When there are no maintenance problems, they do not have a collective work day.	Fine R\$20
Settlement 4	One 4 hour morning per week, includes collective crops.	Fine R\$20
Settlement 5	One 8 hour day per week.	Fine R\$25
Settlement 6	None	None
Settlement 7	One 8 hour day per week during summer, includes collective crops and cattle.	Fine R\$25
Settlement 8	One 8 hour day per week during summer, includes collective crops. Cattle care is rotated daily through the families.	Fine R\$15

Author's Data. Settlement Collective Work Rules describe the guidelines for settlement collective work. Sanction is the official association response if a household misses a collective work day without an accepted excuse.

Of the eight settlements in my study, seven had established collective work. One, Settlement 6 had never established collective work. All seven settlements that had collective work included settlement maintenance under its purview. The guidelines

for when settlement collective work should occur can be divided into three groups. In the first group, Settlements 1, 4, and 5 set aside a specific amount of time, either 4 or 8 hours per week year around. In the second group, Settlements 7 and 8 only conducted collective maintenance work in the summer (when there is no rain and they are not planting individual household crops). In the third group, Settlements 2 and 3 only had collective work as needed. In all cases, the fine for non-participation was similar, from R\$15 to R\$25, roughly what an agricultural laborer would get paid for a day's labor.

4.4 Free Riding in Collective Settlement Work

Free-riding is an ongoing but not insurmountable obstacle to collective work on the settlement. The extensive set of rules and practices settlements have created for collective work provide evidence of the threat of free riding. Formalized institutions, such as settlement bylaws (*Regimento Interno*) outline rules for collective work and sanctions for non-participation, exemplify the expertise settlements have in designing collective work. This expertise is born out of over ten years of experience in each of the settlements, dealing with and resolving problems that have arisen through collective work.

In addition, there are a variety of other means by which the settlers have dealt with free riding. When there is an issue with shirking, most settlements begin by calling a meeting to discuss problems of non-participation. Here they state the importance of collective work, fairness, and the repercussion for non-participation. Additionally, leadership occasionally speaks individually with those who fail to participate. If the person is still unwilling to show up and does not have an acceptable excuse, they are charged one day's labor. This is around R\$15/25 (US\$7.50/12.50); occasionally it can be paid in material as well.

Frequently, people are charged the day's labor but do not pay. When this happens leadership will again pressure the non-players to pay through one-on-one meetings or through group meetings. If the settlement continues to confront shirking or non-participation, the association can ask other institutions to intervene. Occasionally, the Landless Workers Movement or the Agricultural Workers' Union will come in at the leadership's invitation to reinforce the importance of collective work within the settlement context. Federal settlements can also appeal to the national land reform agency (Instituto Nacional de Colonização e Reforma Agrária, INCRA) to come to the settlement and talk with those who will not participate. As a last recourse, if settlers reach a consensus, they can expel those who do not participate. My interviews showed no evidence of serious consideration of this last sanction for non-participation in the eight settlements I visited, but many settlements had expelled members that had transgressed other settlement rules (such as, stealing from others on the settlement, acting violently against other members, or conducting illegal activities that threatened state or national recognition of the settlement).

4.4.1 Case Study Evidence of Free Riding in Settlement Work

Settlements 1, 2 and 3 had experienced very minimal problems with free riding in their collective work. In these settlements when collective work is needed everyone participates. The settlers understand the necessity of collective work to the functioning of the settlement. Here the settlers use the collective as a resource to deal with new problems. They call a meeting to discuss, problem-solve, and when there is an emergent need they add extra collective work days to address the problem. In addition, there is an understanding of the efficiency collective work provides for the group, rather than leaving problems to individuals to solve.

If we need to make a fence because the cattle are getting in, the whole settlement participates. A group together could make that fence in half an hour to an hour, whereas it might take one person

Se precisar fazer uma cerca por que o gado ta entrando lá. Ai vai a turma toda, vai o pessoal lá, faz aquela cerca, onde um podia fazer em tres ou quatro dias, vai o grupo la e faz em meia

three or four days. ... We have collective work every week on Monday, ... as well as whenever there is an emergency. ... If the work requires two days, then we work for two days (Settlement 1, Member 6, 2012, Author's Translation).

hora ou em uma hora, né? ... O coletivo ele é semanalmente, toda segunda feira é dia de trabalho coletivo, ... se surge qualquer outra emergência, o grupo vai fazer. ... Se precisa trabalhar dois dias, vai trabalhar os dois dias, mas segunda feira, segunda feira sempre é o dia (Settlement 1, Member 6, 2012).

Settlements 4, 5, 7, and 8 had experienced problems with free riding. When shirking occurred these settlements undertook a variety of methods to resolve the issue. Often they began by calling a meeting to discuss problems of non-participation. In Settlements 4 and 5 they identified obstacles inhibiting the participation of settlers in the collective work and restructured the work to deal with those obstacles. They also stated the importance of collective work, fairness, and the repercussions of not participating according to the bylaws in meetings. In Settlements 4, 5, and 8 the leadership spoke individually with those who failed to participate. If the person is still unwilling to participate and does not have an acceptable excuse, they are charged one day's labor. In Settlement 8, they also have the option of paying by providing additional work. Settlements 4 and 5 called on the Landless Workers Movement to help them resolve issues of free riding.

Settlements 4 and 8 had completely resolved their free riding problems. Settlement 4 accomplished this by restructuring the settlement collective work. In Settlement 4 some adolescents represented their families in the collective work. They often missed days or hours of work because they had to go to school. Since school occurs in the afternoon, the settlers restructured the collective work to begin earlier from 7 am to 10 or 11 am, so that the boys had time to shower, eat, and catch the bus to high school. Settlement 8 has mainly solved the collective work problems by pressuring those who do not participate via one-on-one meetings and group meetings. Additionally, Settlement 8 had implemented a rule that the settlers can only pay someone to take their place in collective work once a month; after that they are required to pay any additional days missed with labor done outside of collective work time.

Settlement 5 is an example of a settlement that used settlement bylaws, as well as creative solutions in order to navigate free riding, although they were unable to eliminate the problem. Settlement 5 was created in 1998 and by 2005 they had reached an impasse with respect to collective work. Many people were refusing to participate and the collective work was in disarray.⁶ The main problem according to settler interviews was that some settlement members had to walk too far to participate in settlement collective work. The settlement is large and the households are located in two distinct areas, rather than being consolidated in one area. As such, some settlement members saw participation in collective work as too costly. The settlers had been unable to address the problem internally, so they invited a militant with the Landless Workers Movement to serve as president of the settlement in 2005. With his assistance, the settlement was able to resolve some of their conflicts and recuperate the collective work. First, they began having settlement meetings to persuade settlers to participate. They also asked the MST to visit, which representative members did, and conducted meetings reinforcing the importance of collective work to settlement success. Moreover, the settlers identified the distance between households and the collective settlement work as a barrier to participation. Consequently, they divided collective workers into two groups depending on geographic area. In addition, they imposed the agreed-upon sanctions for missed work. They decided that people could either pay the R\$20 for each day they missed or they could contribute fence staples for building material. Together these efforts have resolved some of their conflicts and revived participation in collective work. Yet, even with this effort they have still been unable to convince several members to participate adequately in the settlement collective work. As a last recourse, the settlers have appealed to INCRA to come to

⁶The ineffective original organization of collective work could be thought of as a problem of coordination, rather than a failure of cooperation. Before the free riding problem could be solved, a coordination problem — organizing the work effectively — had to be solved.

the settlement and serve as a threat to non-participants. Unfortunately, it has been difficult to get INCRA to come to talk to members who do not want to participate. In fact, INCRA has only visited the settlement one time in the past five years. Despite the non-participation of several households, a great majority of the settlers participate with seventeen of nineteen (89%) households participating (see Table 4.2).

If, for example, we need to build a fence or complete some other work we hold a meeting and organize the work. Sometimes no one disagrees and everyone agrees. But sometimes people do not participate in the [collective] work on the correct day, they always take that day off from collective work. ... There are many people who do not comply with the obligation. The collective is central to the settlement. There are around three [families] that do not participate. There are others as well, that will work one day, skip the next, and then work again (Settlement 5, Member 1, 2013, Author's Translation).

R1: É, se é, por exemplo, da gente fazer uma cerca ou qualquer outro serviço. Aí combina na reunião para fazer aquele serviço. Às vezes nunca ninguém discordou, sempre concordam. Às vezes não vai é trabalhar no dia certo, tem alguns que sempre “folgam” naquele dia do coletivo. ... Tem muita gente que não tá cumprindo aquela obrigação. Que é o coletivo é o mais principal do assentamento, né. ... Tem aí uns 3 que tá um bom tempo que não frequenta. E os outros é assim, trabalha um dia, e vai sempre salteando, passa um dia sem trabalhar, volta de novo. Mas para dizer assim, tá com muito tempo que não trabalha, 5, 10 famílias. Não tem assim (Settlement 5, Member 1, 2013).

Settlement 7's collective work was on hold when I conducted my field work. This settlement had been experiencing challenges in keeping settlement presidents. The past five years had seen one resignation due to pregnancy replaced by a president too ill to carry out his presidential duties.

While Table 4.2 is suggestive rather than conclusive, it is apparent that a great majority of settlers participate in collective work. As I noted above, Settlement 5 and 7 have not been able to completely eliminate free riding. These are also the settlements in which the fewest people are paying the fines charged for non-participation. Settlement 7's responses correspond to the previous season. Most settlement members feel that collective work is divided fairly. The majority of the settlements charge people when they do not show up. Payment by settlement members varies but enough people are paying the sanction such that it remains a credible threat.

Table 4.2. Participation in Settlement Collective Work

Settlement	Collective	Divide	Charge	Pay
3	100%	83%	92%	75%
4	100%	90%	50%	50%
5	89%	95%	89%	32%
7	92%	88%	96%	32%
8	100%	71%	100%	53%

The survey questions were as follows: Collective — Do you participate in settlement collective work?; Divide — Do you feel settlement collective work is divided fairly?; Charge — When members miss settlement collective work days are they charged the missed days work?; Pay — When members are charged the missed day's work, do they pay? Settlement 6 does not have collective work. Settlements 1 and 2 are not included in the table because they were not surveyed. In these two settlements I only conducted interviews.

4.4.2 Collective Crops and Livestock

Three of the eight settlements had collective crops or livestock in addition to their SJA subproject. Some of the work necessary for maintaining the collective crops and livestock was conducted during the time set aside for collective work and some was conducted outside of it. Settlements 4 and 8 tended their collective crops during the hours set aside for collective work. They grow these crops to pay the yearly installments on their land loan.

Settlement 4's collective crops include beans, corn, and papayas. Although there is minimal investment in the communal land, the proceeds are kept in the association's bank account. Most settlers use some form of pesticide control, tractor cultivation, and sometimes fertilizer on their own land. On the collective land, they do not use tractors, pesticides, or fertilizer. The proceeds from the collective land go into the association's bank account and are used to pay the land loan. Only eight of the ten families are willing to work on the productive cultivation. The two families who refuse to participate do not believe they should have to pay the land loan back. Thus, the other settlers have required these families to pay their part of the land loan out of their own income, something they either can't or have been unwilling to do many years.

This has resulted in loan delinquency most years for all members of the settlement as the land title is held collectively.⁷

Settlement 7 had established an area of fruit tree cultivation, mostly bananas, as a collective crop prior to receiving their SJA project. However, most households had stopped participating in the collective crop cultivation. At the time of my visit, only three families continued to work on the collective crop, collecting fruit for their own homes. Although there seemed to be sufficient water, there was little maintenance of the area. In addition, Settlement 7 had attempted to plant corn and beans collectively, but this had lasted only one year. Settlement 8 produced feed for its cattle collectively. The feed crops were corn, sorghum and *capim* (a grass produced as livestock feed). They stored the harvested crops collectively and settlement members bought the feed for their animals. The money received goes to the settlement association.

Settlements 7 and 8 also have collective livestock. These are cattle that were bought through a government credit program called PRONAF A (Programa Nacional de Fortalecimento da Agricultura Familiar – National Program to Strengthen Family Agriculture. “A” refers to loans given to those living in settlements). In settlement 7 only around five families take care of the collective cattle. The following is an excerpt from an interview in settlement 7 with a household that cares for the collective cattle.

Q: Does everyone participate in caring for the collective livestock? A: Yes, the cattle need someone to look after them. In order to see if they are weak. Some members are not very interested in helping but there are some who always take care of the cattle. Those [people] usually take care of the cattle in the winter when the cattle are left loose [inside the settlement]. When it is winter all we do is check on them to see if they are sick. [When they are sick] We gather two or three of them, put them in corral, [and] cure them. Q: Do those who care for the cattle feel it is unfair that they end up caring for them when others do not? A: Yes, they complain a little. Q: A little? A: Yes. [They say,] “Hey that guy could do it.” Because when the time comes to kill and divide the kilos of meat for each to make a lunch [they say,] “That guy only comes when it is time to re-

P: Todos trabalham com o gado, o gado coletivo? R: É. O gado tem momentos em que ele precisa de estar olhado. Para ver se algum está enfraquecido. Alguns não são muito interessados não, mas tem umas pessoas que sempre cuida. Eles [que sempre cuidam] também tira maior [parte do] tempo nas soltas mesmo, período do inverno né. Quando é inverno é tudo solto, a gente só olha, muitas vezes vai olhar lá se tem alguma bicheira. [Quando tiver] junta por ali uns 2 ou 3, bota no curral, cura. P: E as pessoas que cuidam do gado sentem que é injusto que eles têm que cuidar, e os outros não? R: É eles reclamam um pouco. P: Um pouco? R: É. “Eh fulano podia coisa”. Porque quando chega a hora de matar e dividir quilo né para cada um fazer um almoço aí, “fulano só vem quando é para receber o quilo”.

ceive his kilo of meat.” But in any case we have to push forward. If we don’t the whole thing fails. *Eh mais aí, que também não pode esmorecer tudo né. Se esmorecer e acaba com tudo a situação.*

Settlement 8 also has collective cattle. They keep the cattle in a corral instead of unrestrained as in Settlement 7. The responsibility for feeding the cattle rotates daily through the families. The settlement occasionally sells cattle to cover settlement costs. Originally the settlement was expected to begin paying back the PRONAF A loan in 2013, but due to an extensive drought, loan repayments were pushed back to 2014.

4.4.3 Women and Collective Work

Work conducted on the settlements was gender divided. Most work on crops, with livestock, or in settlement maintenance was conducted by men. Women took care of housework and cared for gardens. Occasionally women would assist men during harvest. There were households in which the women worked alongside the men in cultivating their crops, but these were not the norm. Women did not participate in the collective settlement work dedicated toward maintaining the settlement. In four of the eight settlements women had organized their own collective work at some point over the settlements’ histories. Generally, they took on the tasks of cleaning the settlement’s collective buildings, although in Settlement 1 they also participated in the SJA subproject. The settlement collective buildings are often a larger home, what was previously the manager’s or the landlord’s home. In most settlements this home had been set aside for the settlers as a collective area, often serving as a meeting place or a school for adult education. At the time I conducted my fieldwork only Settlement 5 continued to have scheduled women’s collective work in which the majority of the women participated. Settlement 8 has had some women’s collective work but at the time of the interviews only two women participated. In Settlement 1, the women join

⁷This settlement received its land loan through Crédito Fundiário.

the men's collective work but only for the task of harvesting cashews. In most of the settlements, it had been hard to organize and maintain women's collective work.

Table 4.3. Women's Collective Work

Settlement	Women's Collective Work
Settlement 1	Participate in Cashew Harvesting.
Settlement 2	No Women's Collective Work.
Settlement 3	Originally one 8 hour day per week cleaning collective buildings. Currently No Women's Collective Work.
Settlement 4	No Women's Collective Work.
Settlement 5	One 8 hour day per month. Cleaning collective buildings.
Settlement 6	No Women's Collective Work
Settlement 7	No Women's Collective Work
Settlement 8	One 4 hour morning a month is allocated to keeping settlement buildings clean. Only two women participate.

Author's Data.

4.5 São José Agrário Subprojects

The institutions governing the São José Agrário subprojects often overlap with those of the collective settlement work, particularly in the case of infrastructure subprojects. Infrastructure subproject work is often conducted during the time set aside for the settlement collective work and follows the same rules. One reason for this is that infrastructure subprojects create either a public good or a common pool resource. In either case, these goods are non-excludable. As such, it is important that all settlement households participate in providing these goods to prevent free riding.

SJA productive projects, on the other hand, often have different institutions. While some of the work in productive SJA subprojects can occur during the settlement collective work time, often work on these subprojects occurs outside of the settlement collective work time. This occurs as productive SJA subprojects require long-term, ongoing, frequent work. Thus, productive SJA projects often require additional work to that of the settlement collective work time. The organization and work on the productive subproject are collective but the output is a private, excludable good. For example, the irrigation subprojects in my case studies were small, covering one

field. The work and payments for the electricity to run the pumps for irrigation were contributed (mostly) equally by the subproject participants. The output of the subproject was then sold, and income was divided among the participants. As such, non-participants can be excluded from using the irrigation equipment or sharing in the income produced from the subproject.

As the SJA project members decrease, it is less likely the settlement collective work time will be dedicated to SJA subproject work since the SJA subproject does not represent the whole settlement at that point. Those who participate divide the outcome among themselves. Typically free riding in SJA productive subprojects is observable primarily as shirking. When subproject rules are unclear, it can be quite difficult to sanction or exclude shirking members. Typically there is no fine if a participating member does not show up for SJA productive or infrastructure subproject work unless that work falls under the time dedicated to collective settlement work. In that case, the rules governing settlement collective work come into play. Each settlement creates its own rules for its SJA subprojects. In my case studies, I found these rules to be less formalized than those for the collective settlement work. As such, dealing with free riding problems poses a challenge to the SJA subproject success.

There are differences in the potential for free riding in SJA subprojects depending on the type of subproject and the stage of the subproject (see Table 4.4). All SJA subprojects include a design phase and need to be administered throughout their life span, requiring participant input in SJA subproject organization. All SJA subprojects including those providing public goods, common pool resources, and private goods face free riding in terms of shirking subproject work or by not providing the necessary monetary contributions to implement and maintain the subproject. Common pool resource subprojects can potentially face overuse of the resource. Productive subprojects primarily face free riding as shirking or non-contribution of inputs.

Free riding occurs depending on the stage of the subproject (see Table 4.4). During Stage 1 the settlements organized and submitted proposals for the SJA subprojects. This necessitated participation of all households in this organizational activity. During Stage 2, technical agencies came to the settlements, and, with the assistance of the settlement households, built the SJA subprojects. In this stage, it was possible that the settlers would need to provide further organizational activities, monetary contributions, and provide labor for the implementation process. In Stage 3 and thereafter, the technical agencies associated with SJA subproject have left the communities to administer the productive or the infrastructure subproject on their own. Stage 3 for infrastructure subprojects is the Operations and Maintenance (O&M) Stage. It can include organizational activities to deal with unforeseen problems, monetary contributions, and labor to provide maintenance. In addition, stage 3 of the common pool resource subproject faces the potential problem of overuse. Stage 3 of the productive subproject is the Incubation Stage in which the subproject has been built, but has yet to produce enough to be sold on the market or to provide a significant source of income for the settlement. This stage can include organizational activities to deal with unforeseen problems. It is also quite important in this stage that the member households provide ongoing and continual labor to the subproject. Often the households are also responsible for paying bills related to the subproject (a monetary contribution). Stage 4, the Output Stage, only exists in the productive SJA subproject. Here the settlers may need to organize transportation and access to a market in which to sell their output. Then they must distribute the resulting income or production among the subproject members. In addition, there are often ongoing costs associated with bringing the production to market as well as with the ongoing production. Similarly, there is an ongoing need for labor in production, sales, and distribution.

Table 4.4 provides a breakdown of the types of free riding and when they can potentially occur. Boxed numbers indicate that this type of free riding affected my case studies.

Table 4.4. Types of Free Riding

		Stage 1	Stage 2	Stage 3	Stage 4
Infrastructure		Approval	Implementation	O&M	None
	Public Goods	1	1,2,3	1, 2 ,3	
	CPR	1	1,2,3	1, 2 ,3,4	
Productive		Approval	Implementation	Incubation	Output
	Private Goods	1	1,2,3	1 , 2 , 3	—, —, —

Author's typology. 1,2,3,4 indicate different types of free riding that could occur in the projects included in my case studies.

1 = Failure to participate in organizational activities

2 = Failure to provide monetary contributions

3 = Shirking subproject work

4 = Overuse of resource

A box around the numbers indicates I observed this type of free riding in my case studies.

— Indicates that none of the productive projects in my study had reached the Output Stage and as such I could not observe or interview settlers about free riding. I would assume that free riding could occur here as either 1, 2 or 3.

4.5.1 Technical Assistance

In the cases of both SJA and SJII, once a community receives a subproject they act collectively to implement, operate, and maintain the subproject. The level of assistance settlers receive in each of these stages varies widely. Subproject implementation is designed and carried out by technical agencies working with the communities, which generally provide labor. Technical agencies can be either public or private. Implementation is an intensive stage that most often requires significant daily labor over a certain period by the participants. In two of my cases, that of building a fence and planting cashew trees, participants worked collectively every day for several months until the subproject was finished. The presence of the technical agency in the settlement, in addition to monitoring the collective work, also generates optimism and motivation, further limiting free riding. Following the implementation stage, communities are largely left to themselves to carry out the subproject O&M Stage in

the infrastructure subproject, or the Incubation and Output Stages in productive subprojects.

4.6 Free Riding in São José Agrário Subprojects

Did free riding exist in my case studies of the SJA subprojects? Of the eight subprojects, one showed clear evidence of free riding, Settlement 5. São José Agrário subprojects in Settlements 3 and 7 showed group and individual attrition respectively from productive SJA subprojects. Overall settlers seemed to overcome most free riding problems in the SJA subprojects. It is difficult to draw strong conclusion regarding free riding in the SJA subprojects because of the newness of the SJA productive subprojects, the fact that many of them had already failed, and that, for the most part, the subprojects had yet to contribute significant production or increases in income (and, as such, may not have been particularly desirable to the community).

Table 4.5. Participation and Free Riding in Sao Jose Agrario

Settlement	SJA	Subproject Type	No.Fam. At Start	Part/Inter Fams	Existing
Settlement 1	Cashew	Private Good	42		Yes
Settlement 2	Fence	Public Good	25		Yes
Settlement 3	Irrigation	Private Good	16	10/12 = 83%	No
Settlement 4	Capim	Private Good	10	10/10 = 100%	Yes
Settlement 4	Fence	Public Good	10	10/10 = 100%	Yes
Settlement 4	Storage Shed	Public Good	10	10/10 = 100%	Yes
Settlement 6	Reservoir	CPR	12	7/10 = 70%	No
Settlement 5	Apiculture	Private Good	22	11/19 = 58%	On Hold
Settlement 7	Irrigation	Private Good	27	11/25 = 44%	No
Settlement 8	Tractor	Private Good	23	17/17 = 100%	Yes

Number of Families at the start is the number of families officially registered in the project by the government/MST statistics in 2007/2008. I only conducted interviews in Settlements 1 and 2, so I don't have the statistics on the total number of families currently participating. In Settlements 3 through 8, I conducted a census survey, and the number of surveyed families is the denominator, the number who said they are currently participating in the subproject or were participating when the subproject failed is the numerator. Settlement 4 had split the funds for the SJA subproject into three subprojects: capim, fence, storage shed. I categorize the subprojects into private goods, public goods, and common pool resources. What I am referring to here is the outcome of the subproject. For example, irrigation subprojects produce fruits and vegetables which can be sold in the market. This money is the private good which is shared among the participants.

The Implementation Stage of both the infrastructure and the productive subprojects had very few problems with free riding. During this stage, there are two factors which prevent free riding. First, technical agencies assist the settlers in constructing the subprojects. Often the settlers work alongside the technical agencies. In my case studies, settlements provided the required ten percent of subproject cost in labor rather than in cash. Technical assistance serves as an outside monitor of non-participation during the implementation period, serving as a complement to internal institutional structures that limit free riding. Second, generally, the settlers are excited about the subproject prospects resulting in high levels of motivation and participation. The following quote illuminates how “servants” (community members) assisted the mason, rotating the jobs among the families each day.

We all worked collectively. ... It took a long time [to finish]. Because we spent nearly a month just on the shed. ... It was the whole week [we worked]. When we were working [on the shed] during the week, one day two people would come, or sometimes three. It was more or less like this. We worked there with two masons and three servants every day, the whole week. There were days that there were up to four people here, four servants helping the mason, and the mason, altogether this was six people (Settlement 4, Member 2, 2013, Author’s Translation).

A gente tudo trabalhou coletivo. ... Levou bastante tempo. Porque só no salão, a gente passou quase um mês. ... Foi a semana todinha. Quando a gente estava trabalhando aí, a gente... uma semana era assim, um dia vinha dois, um dia vinha dois, três, um dia vinha... era mais ou menos assim, não é? A gente trabalhava aí, era dois pedreiros, três serventes todo dia. A semana todinha. Tinha dia de ter até quatro pessoas aqui, quatro serventes ajudante do pedreiro, e com o pedreiro era seis pessoas (Settlement 4, Member 2, 2013).

Once the Implementation Stage is complete, the technical agency leaves the settlement and the project transitions into an Operations and Maintenance Stage (O&M). In this stage, much of the collective work in the infrastructure subprojects is completed during the time set aside for settlement collective work. Thus, if shirking is present in the settlement collective work, it will also affect the SJA subproject work. The infrastructure subprojects in my case studies occurred in Settlements 2, 4, and 6. Settlements 2 and 4 had few problems with collective settlement work (as we saw in the last section). Settlement 6’s subproject failed but not for reasons of free riding.

A further characteristic of infrastructure subprojects during the O&M stage is that the settlement is expected (by the WB and SDA subproject designers) to charge a fee

to each member for the use of the good. Settlement 2 and 4 were unable to charge a fee to its members for the use of the fence (Settlement 6's project was never built). Since the good — the fence — is non-excludable, it becomes difficult to enforce a fee for use. In fact, in the communities I visited there were several which had previous São José I and II subprojects that included reservoirs. In several cases reservoir dams had broken, and because communities had not collected a usage fee, they had been unable to repair the reservoirs. In the case of Settlement 2, repairs to the fence are much less expensive than those to a reservoir. Thus, it is probable that in the case of fence damage the association could raise enough money via one-time donations from settlement members.

Productive subprojects need ongoing and continual collective work. Free riding in productive subprojects presents either as a failure to contribute equally in terms of labor — shirking — or monetary requirements. For example, in an irrigation subproject, a household is in charge of turning on and off the water each day. While infrastructure subprojects require the majority of the collective work during the implementation stage, productive subprojects tend to have ongoing significant labor requirements and often, monetary costs. Thus, free riding becomes a more persistent problem. The strength of these subprojects is their excludable nature. Thus, if participants free ride to the extent that others find it objectionable they can be excluded from the subproject.

M1: Those that don't want to participate in the collective [SJA subproject] work. ... no one is going to force them, right? The person stays on the sidelines, and we go and take care of the collective work.

M2: For example now in the cashew gathering, we have the cashew harvest, and then we gather all of the harvest, and we sell the cashews and those who don't want to participate for whatever reason, he will lose a certain percent of the production, right? We will take out forty percent of the collective, that leaves sixty percent, he is left out of that sixty percent. He is not participating in that income.

M1: Aquele que não quer participar do coletivo. ... ninguém vai forçar, né? H1: Ele fica lá prum ladozinho e a gente vai cuidar do coletivo.

M2: Por exemplo agora na coleta da castanha, tem a colheita da castanha, e daí quando junta toda a colheita, faz a venda da castanha e daí aquele que não quis participar por um motivo qualquer, ele vai perder uma certa porcentagem da produção né? Vai se tirar o quarenta por cento coletivo, vai ficar os sessenta por cento, ele vai ficar fora daqueles sessenta. Não está participando dessa renda.

M1: Because if he is not participating, he won't be a beneficiary either, right (Settlement 2, Members 1 and 2, 2012, Author's Translation)?

M1: Por que não esta participando não será beneficiado também, né (Settlement 2, Members 1 and 2, 2012)?

For the most part, the settlers were able to overcome free riding in their SJA subprojects. Of the six settlements with subprojects, only Settlement 5 presented clear evidence of free riding. This was also one of the settlements that had encountered difficulties with settlement collective work. Settlements 3 and 7 also presented some indications that free riding may have been a problem prior to subproject failure.

Settlement 5 was careful to institute rules dealing with free riding in their api-culture project by creating a document outlining the rules of the subproject. This was the only settlement to have a written document outlining subproject rules. For example, if a person misses more than two days in a row without a reasonable excuse it is brought to the attention of the group (Assentamento 5, Associacao do Projecto de Assentamento 5, 2008). If they continue missing work, then it will be brought up in an administrative meeting and the person can be excluded from the subproject (Assentamento 5, Associacao do Projecto de Assentamento 5, 2008). There is a problem with this rule because it does not delineate practical guidelines, such as after how many missed days would there be a meeting held. Furthermore, although a document outlining the rules exists, none of the interviewees mentioned it except the president.

Unfortunately, the drought that had persisted in the region for the two years preceding the period of my investigation had weakened Settlement 5's subproject. The drought had contributed to a lack of flowers and subproject participants were feeding the bees in order to keep them alive. Of the eleven households who considered themselves current members of the project, only four households were contributing money to buy the sugar and contributing labor to feed the bees. Those who were not contributing were not expelled from the subproject. Invariably, they said they were waiting for good rains (and thus flowers) to start working on the subproject again,

once the bees were producing honey. In this case, even though they had a list of rules for the subproject, the settlement members were not using them to exclude members from the subproject who were free riding.

Settlements 1, 2, 4, and 8 showed no evidence of free riding in their subprojects and they all had ongoing subprojects. Settlement 4 had essentially privatized their productive subproject of growing *capim* by separating the subproject equally among all members. Each settlement family was given an equal amount of land and *capim* seed (a grass feed for livestock) in the same field. If they did not want to grow the *capim*, they could leave the land fallow with no negative repercussion for the rest of the subproject participants. Each household could use the *capim* to feed their own livestock or sell it to other members. Settlement 8's tractor was owned by the settlement association and rented to the settlers following a strict set of rules created by the state government that accompanies this subproject. Settlement 1 had full participation and a sense of unity that was somewhat unique among the settlements I visited. They were optimistic about their cashew tree harvest and had even applied to other government agencies and NGOs to learn ways of processing the fruit and nuts and to invest in the needed infrastructure.

Settlements 3 and 7 both had irrigation subprojects. One of the main challenges to these two subprojects was the need to provide monthly electricity payments. The settlers were not willing to pay these charges. In both cases, the settlements were eligible for government subsidized electricity. Neither settlement was willing to go through the government bureaucracy to access these funds indicating a failure of the subproject members to take on the necessary (re)organizational chores. In Settlement 3, the group as a whole decided to leave the project. The fact that members were unwilling to either pay for electricity or to undertake the bureaucratic process of accessing subsidized electricity might indicate some free riding. In Settlement 7, there was persistent attrition from the subproject until the costs of electricity were too much

for the remaining project members and they quit as well. Subproject attrition could also indicate free riding problems. In these two subprojects, even given the desire of other members to continue the subproject, these remaining members were unable to do so due to the cost of electricity. These two examples show an explicit refusal by members of these two settlements to provide monetary inputs in order to support the subprojects.

I did not observe free riding in stage 4 because none of the productive SJA subprojects had reached that phase successfully. Settlement 1's cashew trees were not yet producing sufficiently to find a market. Settlement 5 had one year of honey production but had been unable to find a place to sell their honey. Soon thereafter the drought hit and the point became moot as honey production halted. It is unclear if they will be able to overcome this problem in the future and if free riding will play a role.

While settlement institutions frame subproject institutions, subproject institutions do not frame settlement institutions. Most settlements had confronted free riding at some point in either their settlement collective work or in their SJA subprojects. Free riding could present a more significant potential problem for the SJA infrastructure subprojects because settlers cannot exclude those who do not provide labor or monetary inputs from these subprojects. The excludable nature of the SJA productive subprojects should make it much easier to expel free riders from the subproject.⁸ Yet the ability to do so depends on the implementation of subproject rules,

⁸Since the settlement and the subproject are distinct entities, failure of one does not necessarily predict the failure of the other. More concretely, the failure of the SJA subproject will have little impact on the continuation of the settlement. In many of my case studies the subproject failed — participants left the subproject, but because the settlement and subproject are distinct and contributions to the settlement are different than contributions to the subproject — subproject failure had little impact on the settlement. In addition, individual exclusion from the subproject has little impact on individual participation in the settlement. Often settlement members decided not to participate in the SJA subproject or left the SJA subproject and faced no repercussions to their membership in the settlement. The failure of the settlement may lead to the failure of the

which are often vague. It seems likely that, in the event these subprojects were to continue into maturity and to increase production and income, they would become more desirable. Consequently, participants might be loathed to leave, and shirking could present a greater obstacle to the management of these subprojects. Free riding may occur more frequently in cases where subproject rules are vague. The persistent problems the settlement collective work faces indicates productive subprojects, with their need for ongoing work, might also face free riding problems including shirking.

4.7 Discussion

4.7.1 The Collective Work Labor Supply Pattern

I observed a cyclical pattern to free riding in settlement collective work. This pattern is present (to some extent) in SJA infrastructure subprojects inasmuch as it is present in those settlements' collective work. I believe such a pattern would also challenge the SJA productive subprojects given a longer time frame.

In settlement collective work, settlers go through periods of high participation, effort and motivation. When for whatever reason motivation declines, settlers begin shirking, which can beget more shirking. At this point, settlers must resolve whatever issues are affecting the collective settlement work, or it may become ineffective. Generally, it takes significant organization and effort to re-motivate the settlers. This is a cost incurred by the community. When successful, the effort settlers have contributed increases settler commitment to collective settlement work. Often collective work functions well for a period thereafter. Again a shock may hit, or time may just go by in which settlers again lose motivation, and the cycle begins again. Here we can see the cyclical nature of free riding in collective action.

subproject if the land used for the subproject becomes unavailable or the participants are forced to leave the region. In the larger SJII project, many subprojects occurred outside of settlements.

The extent of free-riding differs between infrastructure and productive SJA subprojects based on their design. In both infrastructure and productive SJA subprojects the technical agencies that designed the subprojects come to the settlements and begin the subprojects during the Implementation Stage. The settlers provide labor during this stage (fulfilling the requirement that they contribute 10% of project cost in either labor or money). During this stage of the subproject, with the backing of the SDA and technicians, subproject optimism is high and settlers are motivated. Settlers are proficient organizers and have extensive experience working together. They quickly and efficiently accomplish the initial labor requirements of the subproject. This can be from constructing needed buildings to planting trees.

Here the infrastructure and productive subprojects diverge. After this Implementation Stage much less labor is required to maintain the infrastructure subprojects and it can often be completed during settlement collective work. On the other hand productive subprojects require both this intensive ‘first’ labor during the Implementation Stage as well as ongoing labor in the Incubation and Output Stages. In the Incubation Stage, as time goes by and problems appear, including sporadic technical assistance and accompaniment, settler motivation and optimism falls. People stop showing up for group work. There is a slump in labor supply and intensity. If problems are not resolved, and accompaniment and a rationale for motivation are not present, people begin to drop out. Remaining participants may not be capable of carrying out the subproject (e.g. too few people over which to spread costs) and therefore may shirk or also drop out. In a worst case scenario, remaining participants may take what is left of subproject resources and use them for their private production.

Thus in both types of subprojects, settlers’ willingness to participate mirrors the pattern I observed in settlement collective work. The extent of free-riding is not static, but variable. Collective action has peaks and valleys of participation, which can occur even over a relatively short term. If subprojects are to be successful, they

must find a way to either keep motivation up or re-motivate participants early in the Incubation Stage before participants start to drop out. One of the more practical ways of doing this is through consistent technical assistance. This technical assistance should be directed at resolving problems facing the settlers in the subproject, as well as assisting participants in laying the groundwork to quickly introduce subproject production into markets in order to speedily provide income. This is essential in demonstrating the feasibility of productive subprojects.

4.7.2 Free Riding Occurrence in Settlement Collective Work versus SJA Subprojects

I hypothesized: If free riding presented a problem in settlement collective work it would also do so in the SJA subprojects. I found this hypothesis to mostly hold. Table 4.6 shows that in almost all cases when the settlement collective work had free riding, the SJA subproject also had free riding. To some extent, this occurred because the SJA subproject work was sometimes subsumed under the settlement collective work time. Yet in the case of productive subprojects, Settlements 1, 3, 4, 5, 7, 8, the existence of unresolved free riding in collective work also correlated with the existence of free riding in SJA productive subproject work in five of the six settlements. In Settlement 3 we see that there was no free riding in collective settlement work, but there may have been in the SJA subproject. Clearly there was a lack of desire to apply for the government subsidized electricity or to pay for full cost electricity but this could be due to problems other than free riding as well (for example the settlers may not have believed the subproject would ever cover its costs or the bureaucratic process of applying presented too high a cost). Additionally, it is important to note that in Settlement 3, what was required was not labor but additional funds to pay for electricity.

Table 4.6. Free Riding in Collective Settlement Work Versus SJA Subproject Work

Settlement	Collective Work Free Riding	SJA Subproject Free Riding
1	No	No
2	No	No
3	No	Yes
4	No	No
5	Yes	Yes
6	—	—
7	Yes	Yes
8	No	No

Author's data. Collective Work Free Riding refers to observed free riding during my fieldwork. It excludes historical problems with free riding. Settlement 6 was both unable to create the institution of collective work and had a subproject that was not implemented fully. I exclude it here.

4.7.3 Institutions

I hypothesized that the bottom-up nature of the locally-created and context-specific institutions would preclude free riding in the SJA subprojects. I found that this wasn't the case for the most part. In fact, the SJA subproject institutions were much less robust the settlement institutions around collective settlement work. I go into further detail below.

As I mentioned in the introduction, in the 1970s and 1980s many theorists were cynical that collective work could function due to free riding. In the 1990s, Ostrom and others found, via empirical work, that groups did overcome the free rider problem. Ostrom found that institutions were essential to resolving issues of free riding. Free riding can appear in several forms in collective work and in the CDD projects, from shirking to non-contribution of monetary inputs to maintain the public good. Shirking had been a challenge to many of the settlements' collective maintenance work. Since I choose settlements established between 1998 and 2002, all settlements had over ten years of experience addressing this obstacle. Generally, settlers had successfully handled the free rider problem in the collective maintenance work in large part thanks to settlement institutions.

Free riding presented less of an obstacle for SJA subprojects. In part, this was because, in the case of some subprojects, subproject work was completed during the time set aside for collective maintenance work in which the free riding problem was (mostly) solved. Shirking subproject work tends to occur when people lose motivation. Motivation often declines over the long term (as I mentioned above in the section on the collective work labor supply pattern) thus the failure of some of the subprojects in one or two years hampered my ability to identify free riding problems in the subprojects.

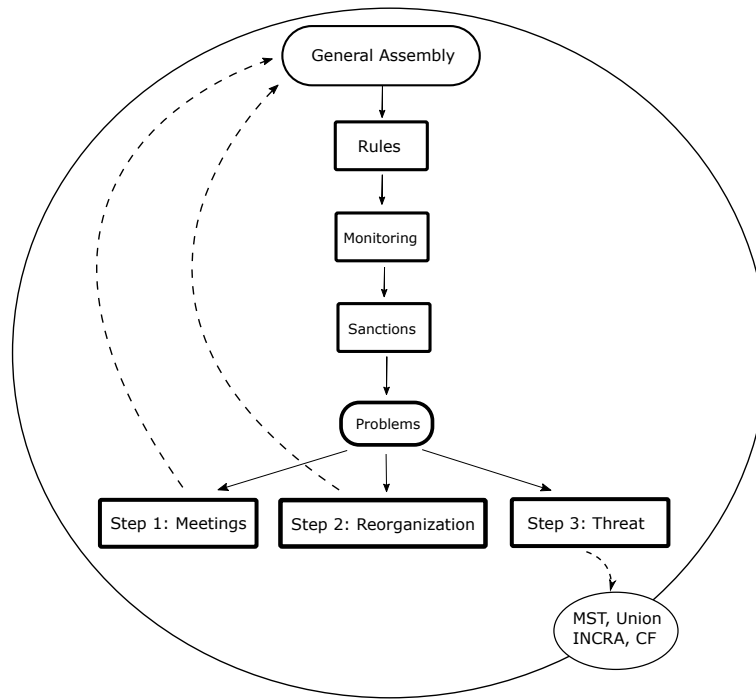
The institutions of collective settlement work had been much more robust than those of the SJA subprojects. Collective settlement work faced many problems over the existence of the settlement and in most settlements, the settlers were able to resolve these problems and ensure the continuation of the collective work. On the other hand, in the SJA subprojects, when formerly participating settlement members dropped out of the subproject, the subprojects failed. As I review the institutions of collective settlement work and those of SJA subprojects, I will refer to the design principles Ostrom defines as important in the successful management of CPRs mentioned in the background section of this chapter (Ostrom, 1990, 90).⁹ Although collective settlement work and SJA subprojects are mostly not CPRs, I believe her design principles are also useful when evaluating successful collective action in these subprojects.

The settlement collective work institutions begin with the general assembly (see Figure 4.1). The general assembly is a meeting of all settlement members held once

⁹1. Clear who has access and a right to use the resource. 2. Rules of resource appropriation and outlining provision by members must reflect local conditions and means. 3. The majority of people using the resource also can affect rules. 4. Active monitors are accountable to the community. 5. Graduated sanctions. 6. Rapid, accessible, low-cost conflict-resolution mechanisms. 7. The external government recognizes community rights to create and implement rules, as well as to monitor and sanction members. 8. Design principles are nested within the local, regional and national government (Ostrom, 1990, p.90).

a month and additionally when needed. This is the arena in which all settlers can participate in creating the rules for the collective work (and for the settlement in general) and deciding on the sanctions for members who free ride. This reflects Ostrom's principle three: the majority of people who are accessing the resource can also affect the rules. The settlers monitor each other because they are all expected to participate in settlement collective work. Settlers can easily identify people who do not participate. Monitoring could be improved by deciding upon specific monitors in order to reduce interpersonal conflict. Ostrom alludes to designating specific monitors in her principle four. When members do not participate, the settlement leadership charges them the previously agreed upon fine as a sanction. If a member continues to fail to participate in the collective work they can be evicted from the settlement. These sanctions have two levels so technically they might be considered graduated, Ostrom's principle number five, but the second level is so severe relative to the shirking that the settlers are loathed to use it.

Figure 4.1. Settlement Collective Work Institutions



Generally, there are three steps to resolving problems when fines do not prevent non-participation and the threat of eviction also fails to motivate members to participate. These steps are outlined in Figure 4.1. In the first step the leadership can meet both individually or in a group with the offending members to reinforce the need for their participation (this occurred in Settlements 4, 5, 6, 7, and 8). Occasionally, these meetings uncover logistical problems that are preventing the settlers from participating (this occurred in Settlements 4 and 5). If this occurs, the settlers may move to step 2. In step 2, the leadership brings the obstacles that the individuals are facing to the general assembly to problem-solve (this occurred in Settlements 4 and 5). The group may then reorganize the settlement work and modify the rules and sanctions. This corresponds closely to Ostrom's principle number six that calls for rapid, accessible, low-cost conflict-resolution mechanisms.

If this still fails to resolve the free riding problem, the settlers can move to step 3. In step 3 the settlers can appeal to the outside entities of the MST, the agricultural workers' union, INCRA, and IDACE¹⁰, to reinforce the sanctions and the need for collective work (this occurred in Settlement 5). Thus, these entities serve what Ostrom has referred to in her principle eight as 'nested enterprises' in that the institutions of the settlement are nested within those of the local, regional, and state government. In Figure 4.1 this is indicated by the circle surrounding the settlement. Furthermore, the ability to appeal directly to entities of the government, for example INCRA and CF, shows that the self-management rules of the community are recognized by the government, Ostrom's principle number seven.

São José Agrário Subprojects

¹⁰The state agency in charge of the Crédito Fundário willing-buyer, willing-seller land reform program.

In infrastructure subprojects, free riding presents in two ways: non-contribution to the subproject O&M fund and shirking. Productive subprojects primarily face free riding as shirking. Yet, the extent of shirking varies between infrastructure and productive subprojects because of their design. Infrastructure subprojects require one-off intensive amounts of labor during the implementation stage but much less labor is dedicated to their maintenance.

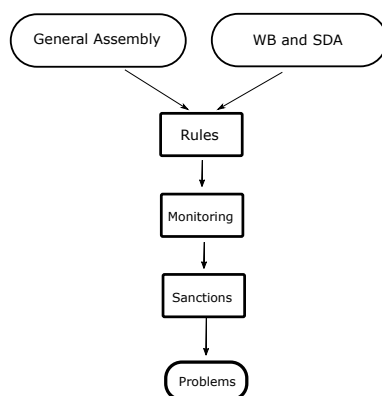
As in collective settlement work, SJA subprojects institutions begin in the general assembly. Many of the rules of the subprojects were decided upon by the SDA and the WB. For example, the settlement must provide ten percent of the cost of the subproject, either in money or in labor. Entry into the subproject is voluntary, and anyone can leave the subproject. Thus, settlement members do not face mandatory participation as they do in the collective settlement work. In all of my case studies, almost the entire settlements had originally decided to participate, and for this reason, the settlement general assemblies served as the governing bodies. The general assemblies were in charge of imposing subproject rules as well as creating their own rules. The subprojects differ to some extent from the collective settlement work in that some of the rules are not the settlers' own but come with the subproject and in addition tend to be universal across subprojects. This aspect is different from Ostrom's principle three, in that the majority of people would not be able to change the rules that are aspects of the project. For example in the infrastructure subprojects, the associations were expected to collect fees, but in my case studies the associations did not collect these. One might expect such an outcome as the good is non-excludable and the settlers have very little cash to contribute to an O&M fund. The leadership did not seem concerned that members were not paying the fees and had made no attempts to

resolve the (supposed) problem. This required rule did not seem to reflect community values.¹¹

Monitoring was done on an ad hoc basis by those involved in subprojects, but again, specific monitors were not designated. Finally, there were not graduated sanctions for rule transgressions in the productive SJA subprojects. Generally, if people violated rules or free rode extensively they could be asked to leave the subproject. I did not find that the settlers had imposed other mechanisms to resolve conflicts. Yet, it may be the case that they had not had major conflicts with respect to the subprojects, as there was little cost to the participants to leave the subprojects. In fact, in the case of most of the subprojects in which several people left the subproject, the rest followed suit thereafter, indicating that settlers were not particularly optimistic about the subprojects' ability to provide them with increased income or production. Infrastructure subprojects were somewhat different in that operations and maintenance work, often repairs, occurred during settlement collective work time, and as such, fell under settlement collective work rules. The institutions of the SJA subprojects did not include any way to problem-solve project problems.

¹¹The settlement members are also required to abide by numerous top-down rules imposed upon them as a condition of being registered settlement members. But when becoming a settlement they also create their own rules around self-governance and collective work. There are several differences in the reasons for which there is greater fear to break settlement rules than SJA subproject rules. First, settlement rules are monitored by state or national authorities (very occasionally — but this is more than in the SJA subproject. Second, they fear being evicted from the settlement. They do not fear being excluded from a productive subproject that has not provided significant increases in production or income.

Figure 4.2. Flowchart 2: São José Agrário Subproject Institutions



In the Figures 4.1 and 4.2, it is clear that the institutions of the settlement collective work are much more robust than those of SJA subprojects. Shirking in productive subprojects in my sample tended to increase over time. Thus, subprojects with ongoing labor — productive subprojects — tend to face more shirking than those based primarily around an implementation stage — infrastructure subprojects. For example in Settlement 5, it was clear that some settlers who were still a part of the beekeeping subproject were not contributing money or effort to feed the bees. The failure rate, immaturity, and semi-privatization of subprojects made it difficult to evaluate the free rider problem in all subprojects. However, the existence of the free rider problem in collective maintenance work plausibly suggests if CDD subprojects survive into the future, the free rider problem will need to be overcome. Thus, the design of the CDD projects will need to address this issue.

4.7.4 MST and Municipal Agricultural Workers' Unions

Third, I hypothesized that free riding would be mitigated by the presence of the Landless Workers Social Movement and the Agricultural Workers' Union. I expected these groups would support and facilitate the creation of strong institutions to prevent free riding. I find evidence to support this hypothesis.

Collective work on the settlements and in the SJA subprojects can be difficult to sustain and accompaniment by groups, such as the MST and the Agricultural Workers Union, have served an important role in maintaining effectiveness. As we saw in a previous section, Settlement 5 asked the MST for help when they were facing free riding in collective work. Through community meetings the MST worked with settlers on valuing of settlement collective work. Their presence also served the purpose of reinforcing the leadership's authority. Additionally, when the leadership of Settlement 5 attempted to get INCRA to come to the settlement in order to deal with non-participation in collective maintenance work, the MST lent their political weight to the call although they were unsuccessful in gaining INCRA's attention. Settlements 1 and 2, which were strongly linked to the MST, had community members who worked directly with the MST, served as militants for the MST, or were studying in one of the educational programs of the MST. These settlements appeared to have a stronger commitment to the values of collective work. Interviews in these settlements revealed no problems with collective work in either settlement maintenance or in the SJA projects.

Settlements 7 and 8 were strongly connected to the municipal agricultural workers' labor unions, each in their own municipality, Canindé and Quixeramobim respectively. Settlement 7 had emerged out of an occupation backed by the agricultural workers' labor union when it was more militantly inclined in 1999. Currently, this settlement is having some issues with organization. Their link to the municipal agricultural labor union has eroded. They have had a significant turnover of households living on the settlement, including many households that were more involved with the municipal agricultural labor union. Concurrently, the municipal agricultural labor union became much less active in the settlements with respect to organizing. Settlement 7 is having difficulties sustaining their collective maintenance work and their collective subprojects.

Settlement 8 currently has several of its younger members working with the municipal agricultural workers' labor union. Youth in the community, as well as original settlers, were very active in organizing the community and advocating for projects. Additionally, Settlement 8 has worked closely with a project of the International Fund for Agriculture and Development (which in this community was strongly associated with the Catholic Church) called Dom Helder. Dom Helder has provided the community with a multitude of collective projects. The Settlement's relationship with the labor union and with the long-running Dom Helder project have strengthened their collective institutions.

In Table 4.7, I evaluate settlers' affiliation with the MST and the agricultural workers' labor union in relation to participation in subprojects and subproject success. It suggests that accompaniment can be an important factor to subproject success. Settlements in which more settlers consider themselves members of the MST or members of the municipal agricultural worker's union tend to have ongoing subprojects. In settlements 3 through 8, I conducted a survey of all households. I asked each household whether they considered themselves supporters of the MST, and if they were members of the agricultural workers' labor union. In settlements 1 and 2, I interviewed between 12 and 14 people in each (around half of each settlement). Here I only asked if they considered themselves supporters of the MST. Supporters of the MST tend to participate in events and may donate food or money for occupations and events. To be part of the agricultural workers' labor union, they must pay a small fee but get access to retirement benefits. While certainly only suggestive, Table 4.7 does hint that affiliation with the MST and the municipal agricultural labor unions' is helpful both for participation in the subproject, as well as subproject success.

When a settlement is established, the members define the settlement's sanctions and rules in the settlements bylaws. In settlements with a high number of illiterate people and turnover, members may forget what was written in the association bylaws.

Table 4.7. Accompaniment

Settlement	One	Two	Three	Four	Five	Six	Seven	Eight
MST Yes	100%*	100%*	92%	80%	74%	40%	24%	94%
Union Yes			42%	50%	32%	20%	44%	65%
Participation			100%	100%	89%	0%	92%	100%
Subproject Exists	Yes	Yes	No	Yes	On-Hold	No	No	Yes

Author's data; * indicates that these two are from interviews of around half the settlement, all others are from census surveys of the whole settlement. Participation indicates number of people participating in settlement collective work. This is not a measure of participation in the SJA subproject work.

Additionally, members may come to think a particular rule is not important or does not apply to them. In these cases, the settlement leadership must come up with solutions. Accompaniment can serve the important role of backing up the leadership and act as an outside force reminding settlement members of the purpose of collective work, while the existence of modifiable bylaws ensures such accompaniment reinforces only settlement written rules.

Government and Technical Assistance

In addition to the roles the MST and the Agricultural Worker's Union play, I found that technical agencies and state and national governments play an important role in preventing free riding and fomenting subproject success. Case in point: for settlers to evict someone from a settlement they must get approval from either INCRA or IDACE (Instituto de Desenvolvimento Agrário do Ceará, Institute of Agrarian Development in Ceará). Additionally, the leadership finds it helpful to have the presence of one of these agencies to reinforce their authority in difficult cases of free riding. For example, when a settler is not obeying settlement rules leadership may request help from these agencies in order to reinforce to the settler that the rule is important, should be followed, and the consequence of not doing so may be expulsion from the settlement.

Consistent technical assistance is helpful in solving problems and motivating participants. A main obstacle pointed out repeatedly by settlers was the lack of such technical assistance, which may have contributed to free riding in the SJA subprojects.

4.8 Conclusion

Free riding presented a challenge to both collective settlement work and SJA subproject work. It took a variety of forms including shirking, failure to provide monetary inputs, failure to participate in organizing activities and over-use of resources. Collective settlement work was able to resolve much of the free riding through the settlements' institutional framework designed to support this type of work. SJA subprojects, on the other hand, had comparatively weak supporting institutions for resolving subproject problems.

The rules imposed by the SDA and WB did not include specific conflict resolution mechanisms or graduated sanctions. The imposition of the rules averted the need for settlements to create their own rules, perhaps making institutions less robust. Furthermore, these rules were universal to all SJA subprojects and as such were not context specific. Lastly, these rules were not always feasible to impose for the infrastructure subprojects (such as charging a usage fee for a nonexcludable good).

Accompaniment by the MST and the municipal agricultural workers' unions served as a resource settlers could access when there were problems they could not resolve in collective settlement work. As a final recourse, the ability to request intervention from the national land reform agency (INCRA) was essential to dealing with the gravest problems. In SJA subprojects, technical agencies were able to fill this role to some extent, but because their accompaniment ended after one year, settlers lacked this resource for the full duration of the subprojects.

The cyclical nature of free riding I found in collective settlement work indicates that if a productive SJA subproject were successful in providing increased output and income, thus appealing to the settlers, it is probable that free riding would become a recurrent problem as the project aged. As a result, CDD project design might want to consider free riding when designing project institutions, particularly as they move toward a more productive focus. This study only provides a limited analysis of eight

case studies embedded in a specific institutional environment. It would be very useful to see additional studies address the question of free riding in CDD projects.

CHAPTER 5

PROJECT DESIGN FLAWS: SOURCES OF SÃO JOSÉ AGRÁRIO SUBPROJECT FAILURE

5.1 Introduction

Problems of collective action were overcome in my SJA subproject sample. Yet, almost half the subprojects in my sample had failed. What, then, was the reason for the subproject failure?

A main factor contributing to subproject failure of my sample stemmed from the move from infrastructure subprojects to productive subprojects. In particular, the design of the subprojects was not changed to accommodate the differences between the productive and infrastructure subprojects. As a result, participants did not have the necessary skills to apply for, implement, and manage productive subprojects without significant assistance. Dependence on those providing assistance undermines the community-driven development goal of empowerment. In addition, such dependence could open the space for elite capture to occur.

Subproject design uses technical assistance to fill the gap between the skills participants have and the skills they need. Unfortunately, in the SJA subprojects, the participants relied often on *private* technical agencies. The private technical agencies could use the asymmetric information stemming from technical knowledge and education inequities, as well as the power differences between the participants and technical agency representatives, to take advantage of the participants or even engage in corrupt practices in order to gain a larger profit. Lastly, technicians often have a large influence on a community and can convince the majority to take on subprojects they may not initially identify as a priority.

Misunderstanding the causes of subproject failure can lead to faulty policy corrections. The World Bank assumes that participants self-select into subprojects based on an accurate weighing of the costs and benefits of subproject participation. This assumption results in perceiving significant levels of subproject failure to be the result of participants taking on too much risk and not having enough buy-in. In contrast, I found participants had difficulty predicting subproject costs and benefits due to a lack of information. As such, attrition from the subproject in phases or all at once was a rational response to updated information and not the result of moral hazard. In addition, there were other factors that led to subproject failure, such as private technical agencies taking advantage of participants and a lack of technical assistance (project design flaws).

One of the State Technical Unit technicians noted that such subproject failure was not specific to the SJA project but was a problem of the greater SJII project. Thus, what I found in my sample appears to be representative of the project as a whole.

“And in the end, the great majority [of productive subprojects] failed. These are projects of little reach, the structures and some of the projects are practically idle, the infrastructure has been built .. and nothing is working. This was very bad for all of us that work with sustainable rural development” (Sao Jose Agrario Technician A, 2013, Author’s Translation).

“E terminaram que esses projetos, a grande maioria, eles fracassaram. São projetos de pequeno alcance, essas estruturas, alguns desses projetos estão praticamente parados lá, a estrutura construída ... e nada funcionando. Este foi muito ruim para todos nós que trabalhamos com desenvolvimento rural sustentável” (Sao Jose Agrario Technician A, 2013).

Community-driven development projects have been increasingly focusing on subprojects oriented around fomenting group productive activities. “Many community-driven development programs are also moving decisively toward greater support for livelihood activities. Such projects tend to encompass a broad array of productive activities, including crop production and *nontraditional* agricultural activities, such as aquaculture and medicinal plants, livestock, agro-forestry, fishing, and fish farming” (Mansuri and Rao, 2012, 213, italics mine). In my case studies, I found non-traditional to mean market-oriented livelihood production, often types which were new to the communities and, consequently, of which they had little knowledge or experience.

At a minimum, this signifies the communities have a difficult time evaluating the potential costs and benefits of the projects.

The movement of the São José subprojects toward productive subprojects can be seen in the total number of productive subprojects, as well as the amount of funds dedicated to productive subprojects. Of the SJI subprojects, only 1% of total subprojects were productive subprojects, in SJII 18% were productive subprojects, and SJIII estimates that 76% of all subprojects will be productive subprojects (see Table 5.1). Productive subprojects generally rely on access to electricity and water, and as such become demanded after basic infrastructure has been established. In fact initially, SJI and SJII attempted to implement productive subprojects before access to basic infrastructure was available and ran into a demand problem. Originally SJI had estimated that they would fund 2,380 productive subprojects but ended up funding only 30, while infrastructure subprojects were increased from the estimate of 1,700 to 2,354 and social subprojects were increased from the 420 estimate to 673 (The World Bank, 2001, 22). “Infrastructure investments are the great majority (77%) of completed subprojects in Ceará, most notably rural electrification and water supply which together account for about 70% of the total. As in other participating states, this reflects communities’ wish to obtain the “basics” before turning to productive and social investments” (The World Bank, 2001, 5). In SJII they estimated that they would be able to fund 810 productive subprojects but ended up funding 531 productive subprojects. “The casualty was productive investments, demand for which was clearly over-estimated at appraisal (of both stages) given major deficits of basic infrastructure in Ceará and known tendency region-wide for communities to demand water and energy before anything else” (The World Bank, 2009, 8).

As infrastructure improves, the demand and viability of productive subprojects become greater. While SJI and SJII infrastructure subprojects focused primarily on electricity and water supply, SJIII infrastructure subprojects are focusing on water

Table 5.1. World Bank Funding for Community Subprojects by Type

	Total Projects	Total Cost	Infrastructure Projects	Infrastructure Cost	Productive Projects	Productive Cost	Social Projects	Social Cost
SJI	3057	92.9	2354 (77%)	71.5 (77%)	30 (1%)	0.9 (1%)	673 (22%)	20.5 (22%)
SJII	2932	104.5	2391 (82%)	82.3 (79%)	531 (18%)	19.4 (19%)	10 (0%)	2.8 (3%)
SJIII	585	120.0	140 (24%)	50 (42%)	445 (76%)	70 (58%)	0 (0%)	0 (0%)

Source: (The World Bank, 2001, 2009, 2012).

supply and sewage systems. Currently access to electricity is practically universal, in great part thanks to the federal government's program Luz para Todos (Electricity for Everyone) and in part thanks to the SJI subprojects in Ceará. Alongside these infrastructure subprojects, has been an increasing concern with productive subprojects. In fact, the current São José III CDD project dedicates over half of its subproject budget to productive subprojects. The lessons learned from previous SJ infrastructure and productive subprojects are particularly important as these projects continue into the future.

As the subprojects move from infrastructure to productive subprojects, the infrastructure model has been adopted for productive subprojects. Yet productive subprojects require greater knowledge and access to a variety of resources that was not necessary for the infrastructure subprojects. This creates dependence on technical agencies, which can lead to participants being taken advantage of. The infrastructure model also does not provide sufficient technical assistance for productive subprojects.

This chapter is organized as follows. Section 5.2 presents the problems specific to skills and literacy. Section 5.3 presents the role of the technical agencies. Section 5.4 presents case studies of the participation process and failure. Lastly, section 5.5 concludes.

5.2 Skills: Literacy, Project Elaboration and Accounting

Although many CDD projects are targeted at the poor, literacy is important to the CDD project structure. The poor have higher rates of illiteracy and lower levels of education. Consequently, the poor can have difficulty accessing and following CDD

project guidelines and carrying out subprojects when these guidelines and subprojects require higher levels of literacy and education.

The Brazilian government divides income groups into five classes based on average monthly income (which I converted to yearly income for ease of comparison): Class A (equal to or above R\$116,940), Class B (from R\$89,700 to R\$116,940), Class C (from R\$20,808 to R\$89,700), Class D (from R\$13,020 to R\$20,808), and Class E (from R\$0 to R\$13,020) (Centro de Politicas Sociais, 2011). The richest income group has 99% literacy, and the poorest group only has 85% literacy.

Table 5.2. Literacy by Income Class

Class	Total	Literate	Percentage
A	12,572	12,441	99.0
B	6,495	6,455	99.4
C	127,347	121,117	95.1
D	57,161	50,043	87.6
E	62,982	53,4189	84.8

Source: PNAD 2012, Author's Calculations, Age 15 and Over

According to the same 2012 Brazilian household survey, the total Brazilian literacy rate for people 15 years or older is 91%. This falls to just 82% for the state of Ceara (Fundacao Instituto Brasileiro de Geografia E Estatistica, 2012).¹ My survey of the 6 settlements that received a CDD project reveals a 71.5% literacy rate (295 people, 15 years and older), which is similar to two other surveys done of rural populations in Ceara, Brazil, about ten years earlier, finding overall illiteracy to be 33% and finding 32% of settlement heads of households to be illiterate (Leite et al., 2004; Filho et al., 2001). Before becoming settlers, these were landless workers and *moradores*, and as such some of the poorest of the region. It follows that my sample would have a lower than average literacy rate. The average education of my sample of all participants eighteen and over was five years with a median of four years of education.

¹Rural poverty tends to be concentrated in the Northeast of Brazil.

Just applying for a community-driven development subproject requires a number of steps that could present obstacles to the poorest: accessing information about project existence, forming a legally recognized association, and creating the subproject proposal. The communities in my studies had the advantage that they were formal settlements associated with the Landless Workers Movement (MST). The MST disseminated the information to the settlers, crossing the first obstacle. The second obstacle consisted of creating a legally recognized association to represent the group (this association is how the WB channels the grants to the communities). As part of being a legally recognized settlement, the settlers had already had to form an association. This same association served for the SJA subprojects. The third obstacle was the design of the subproject proposal. In order to accomplish these steps, communities require a medley of resources. For example, the greater the individuals' and communities' connections the better their chance to learn about the SJ projects. The SJ projects also require literacy in the application process and, increasingly, computer literacy, as these processes go online. Additionally, the projects require political know-how in order to navigate local and state government bureaucracies.

Here, I will focus on the obstacles emanating from subproject design as the communities in my case studies did not have to deal with the first two obstacles. The communities are responsible for creating the subproject proposal, which provides the design details, inputs, budget, and a plan for operations and maintenance. While the subprojects I studied came out of SJII, the SJIII WB Project Appraisal Document has a good breakdown of what is expected to be included in the subproject proposals:

“Furthermore, proposals should include information on: (a) market demand for product commercialization; (b) availability of and demand for inputs required for production; (c) viability study; (d) organizational and administrative capacity of the proposing organization; (e) logistics and strategy for commercializing the products; (f) technical design (description of necessary works, technical specifications, budget and list of suppliers of the required equipment); (g) operational framework and sustainability strategy; (h) environmental aspects and specific measures to

prevent or minimize environmental impacts; (i) management plan; (j) financial and accounting management; and (k) water availability and source (for irrigation investments)” (The World Bank, 2012, 27).

In addition to these requirements, proposals are evaluated on their ability to conserve and use water sustainably, meet already identified regional development demands as laid out in regional development plans, and expand technological innovations in production (The World Bank, 2012, 26). The SJIII project has a greater emphasis on environmental conservation, sustainability, and market integration but otherwise is similar to the SJII project.

The World Bank recognizes writing such a subproject proposal can be a barrier to participation in the subprojects by the poorest, both specifically in Ceará and more generally throughout the country. “CAs [community associations] often lack the skills or expertise needed to prepare the proposal, and therefore search for and select outside technical assistance providers” (Coirolo and Lammert, 2009, 61). In Ceará, they have tried to simplify and standardize the process in the past (The World Bank, 2001, 13).

“Some States allow CAs to submit a simplified proposal — containing information about the association (e.g., location, contact information), subproject type, cost, budget, number of families to be benefited, environmental impact, and, for productive and cultural subprojects, a simplified business plan — for approval purposes. However, upon approval, the CAs [community associations] still have to submit a detailed subproject proposal for technical analysis. Other States require a detailed subproject proposal from the very beginning” (Coirolo and Lammert, 2009, 60).

Yet the quote above indicates that even the standardized version requires a significant amount of information and skill to complete, requiring that at least some participants in any group be literate to prepare the basic project documents. The higher the level of education and the number of literate members, the easier it is to navigate components of the project structure.

São José Agrário participants did not have the necessary skills to apply for, plan, implement and manage the SJA productive subprojects on their own. Preparing the subproject proposal requires significant education and technical sophistication. In all eight subprojects I studied, the communities received extensive technical assistance in creating their subproject proposal.² In all but one settlement, Settlement 5, the community leaders were unable to locate either the written subproject proposal or the subproject guidelines.

The WB also conducted four case studies of productive subprojects of the greater SJII project. They found that the business plan³ in all four subprojects depended on the help of outside agencies; either technical agencies, the state technical unit or — for two of their cases — The Bank of Brasil. In one case, the business plan was completely generated by the outside entity (The World Bank, 2009, 52).

Subproject management also presented a challenge to the settlers. Most participants had very little practical management knowledge, beyond deciding when and what to plant. Of the 93 households I surveyed, about half the households (42 of the 93 households) had made some type of work decision before coming to live in the settlement. Of these 42 surveyed who had decision-making power in their previous work, 41 had decided what to plant, 40 had decided when to plant, 1 had managed workers, and 1 had decided who to buy from or sell to. Although important, deciding what and when to plant is to a great extent historically and culturally determined based around rainfall patterns. In Ceará, most small producers plant corn, beans, and cassava. They plant following the first significant rainfall occurring between January to March. While the decisions the settlers were most comfortable with follow a norm, experience with other types of management decisions is lacking, such as organizing workers, arranging transportation and marketing production. Such decisions

²Such assistance did not ensure successful or, sometimes, even appropriate subprojects.

³If the subproject proposal is approved the community needs a business plan.

and their implementation can be particularly challenging when it is a new type of crop or production. Going into these productive subprojects, settlers had little formal or informal knowledge of how to accomplish these tasks.

As part of the management of the subproject, participants were also responsible for accounting for the project funds they controlled. Such accounting was regarded as a challenge by outside institutions and often by the settlers themselves (EMATERCE Technician B, 2013; FETRAECE Representative C, 2013; Landless Workers Movement Representative A, 2013; President of Settlement 3, 2013; Settlement 3, Member 2, 2013; Settlement 5, Member 1, 2013). The SDA technicians consistently cited working with banks, administering the money, and keeping financial records as problems (Sao Jose Agrario Technician A, 2013; Sao Jose Agrario Technician B, 2013; Sao Jose Agrario Technician C, 2013). This is primarily due to a difference in standards of accounting between the communities and the SDA regarding the organization and completeness of the accounts. The associations received the project money in a bank account dedicated just to this project in three parcels. In order to get the second and third parcel, they must report and show the receipts that account for the first parcel of money. According to the SDA, the associations often lose receipts or forget to write them down, resulting in incomplete financial records. Some settlers also cite this as a problem due to low levels of literacy. For example, one settlement president said the following.

“It [keeping accounts] is a big challenge. Because of the large degree of illiteracy. Until a person understands what keeping accounts is, understands numbers, there is a lot of difficulty” (President of Settlement 3, 2013, Author’s Translation).

“É um desafio grande, pelo grau, pelo grande índice de analfabetismo. Até que um cara vai entender [o que é] passar uma prestação de contas, números tem toda essa dificuldade” (President of Settlement 3, 2013).

Another settlement president I spoke with responded that this was not a problem for them, and keeping accounts was simple, it only required noting down expenses and keeping track of receipts (Settlement 7, Member 1, 2013). When I brought this up to one of the SDA technicians, he replied that overall for most communities

the level of record-keeping was less than what the state offices required (Sao Jose Agrario Technician A, 2013). Another difficulty communities faced with respect to managing project funds was dealing with banks, sourcing equipment and supplies, and presenting the required documents and signatures to the government officials in charge of the project.

“Another failure has to do with management itself, group management. The groups that we saw were very inexperienced. They were not prepared to take on the management of the community’s infrastructure or even of the funds transferred to the community. The funds were passed to the community’s bank account ... and the community has to make decisions about obtaining equipment, and this was a permanent difficulty. The communities have a lot of difficulties managing these tasks: dealing with banks, keeping accounts, keeping track of documents, and presenting documents. [For example] there is a very good group of Quilombolas ... good in the sense of keeping accounts. But yesterday they came to submit a report, already it is the third time these people have come to submit a report for access to funds. It is for cashews. And they forget some simple signatures. We remind them, return the documents, and they come back again, but it takes them a long time to return. Then they bring one document [when in fact] we asked for a whole list of documents. They bring one but forget the others. It seems that grassroots groups still do not value documentation, they still think that keeping accounts is something that is done by experts. [They think] that they cannot take on this process. In a way I think to a certain extent the institutions that work with the farmers failed to empower and train them for this type of activity” (Sao Jose Agrario Technician A, 2013, Author’s Translation).

“Outro fracasso também se deve ao próprio gerenciamento, a gestão dos grupos. Os grupos que nós fomos ver, eles eram muito incipientes. Não estavam preparados para assumir a gestão de equipamentos comunitários, ou mesmo dos recursos, dos recursos repassados ... e o recurso é repassado para a conta [bancaria] para eles e eles tem que realizar a decisão de equipamento e foi uma dificuldade permanente. Eles tem muitas dificuldades de operar tudo isso: de lidar com bancos, de prestar conta, de guardar documentação, de apresentar as documentações. Tem o grupo muito bom dos Quilombolas ... que era muito bom no sentido de prestar contas. Mas veio ontem fazer uma prestação, já é a terceiravez que este pessoal vem fazer um prestação de conta aqui. É para cajus. E eles esqueceram uma simple assinatura. E a gente lembra, retorna, volta de novo, demora muito tempo para vir. Ai traz um documento a gente pede toda a relação de documentos. Eles trazem um mas esquecem outros. Parece que os grupos de base ainda tem problema de valorizar a documentação, eles ainda acham que prestação de contas é uma coisa que é feita por especialistas. Que eles não não podem ser apropriar do processo. Eu acho que de uma certa forma as instituições, os órgãos que trabalham com os agricultores esqueceram de fazer essa qualificação e capacita-los para esse tipo de atividade” (Sao Jose Agrario Technician A, 2013).

While the government needs this paperwork trail to ensure funds are being directed appropriately, participants and the Landless Workers Movement perceived this list of requirements as just so much bureaucracy (Landless Workers Movement Representative B, 2013; Settlement 1, Member 4, 2012; Settlement 7, Member 1, 2013; Landless Workers Movement Representative A, 2013). And in fact, it was often considered by the participants themselves as a major impediment to successfully implementing

the subprojects on time. Holdups in tranche releases of subproject funds — either because the settlers were not presenting the correct documentation or because the government was not meeting its timeline — meant settlers were sometimes beginning new subprojects out of season. For example, in Settlement 1, there was a delay in receiving the resources in order to contract for the cashew trees. When they did receive and plant the trees, they were planting during the dry season instead of the rainy season (this is a subproject that does not have irrigation) (Settlement 1, Member 6, 2012).

5.2.1 Discussion

The subproject structure, in which literacy, education, and the business skills required are often beyond what participants hold when entering into the subprojects, generates dependence on other agencies and actors. The main external agencies and actors can include the state technical unit (in charge of the subprojects), other state entities providing technical assistance, private technical agencies, the Landless Workers Movement, Agricultural Workers Unions, and politicians. Dependence on others works directly against the goal of empowerment of a CDD subproject. Additionally, within communities, it can create dependence on the more educated by the illiterate and less educated. Lastly, dependence can open the door to the potential of elite capture — where politicians trade subproject proposals for votes.

The goal of empowerment hinges on building the capacities of communities to successfully gain, implement, and manage their subprojects. By controlling subproject funds, hiring technical agencies, and sourcing inputs subproject participants are supposedly given greater agency. Unfortunately, this ignores the dependence the participants have on those same groups they are hiring, as well as the power, class and education disparities between these groups. Such dependence creates a tension be-

tween empowerment and the participants being taken advantage of. This is explored further in the next section.

The project structure also makes participants with less education dependent on the participants with more education. As we saw in the chapter on elite capture, there is a generational difference in education (see Table 5.3). Those from 18 to 27 have a median of 10.5 years of education, while those from 28 to 47 have a median of 4 years of education, those from 48 to 67 have a median of one year of education, and those older than 68 have a median of zero years of education.⁴ If projects are biased against the less educated this means they are biased toward working with younger members. The mean age for settlers over 18 is around 40.

Table 5.3. Years of Education

Age	Median	Mean	Frequency
18-27	10.5	9.01	76
28-37	4	4.78	46
38-47	4	3.9	58
48-57	1	2.28	32
58-67	1	1.72	25
68-77	0	1.53	17
78-87	0	0	1
88-97	0	0	4

Source: Author's Data.

The within group dependency does two things simultaneously. First, it marginalizes the non- or less-literate members. Since less educated members have a more difficult time preparing and reading subproject documents it is more difficult for them to serve as association leaders. Instead, they must receive the knowledge and information from other members. Second, the power differential creates (or aggravates) a hierarchy within the group based on education, while at the same time causing the more educated members of the group to take on more responsibility and work.

⁴A high school education is equivalent to 11 years of education. In 2006 an additional year of education was added, but it does not impact my adult population.

Dependence on those outside of the communities to obtain, implement, and manage their subprojects, can open the space for elite capture. For example, in the larger SJII project, politicians sometimes filled this role, particularly in helping communities create project proposals to apply for subprojects. As we saw in a previous chapter, one of the main criticisms of the SJII project was the prevalence of elite capture.

The structure of the settlements and the project accompaniment by the MST mitigated these problems to some extent. First, the question of who applies and receives the projects, which seems like it might be biased toward more educated and, likely, more well off groups was avoided. Thus, the relatively high level of illiteracy in the settlements is suggestive of the subprojects reaching lower-income groups. MST accompaniment facilitated project information dissemination and the preparation of basic documents. Together this mitigated bias against less educated and likely poorer people.

The settlement structure can be flexible enough to allow for illiterate members to successfully serve leadership positions. But the fact that the settlement association also serves as the community association used to direct the SJA projects can be an incentive for more educated members to take on leadership positions. Since less educated members have a more difficult time preparing and reading subproject documents, it makes it more difficult for them to serve as association leaders.

Settlement 3 showed participant dependence within the communities of the less educated community members on the more educated community members. There a brother and sister, who are the most educated of the settlement heads of households and spouses, held numerous positions. The 27-year-old brother had completed high school, and he was currently the president of the association. He had previously served as president, as well as two other leadership positions. His 33-year-old sister had completed nine years of education and was the current secretary. She had previously served as president and one other position. They both complained that they were

unable to leave leadership positions because there were so few educated people in the settlement. They said a large component of their leadership with regards to the projects and the settlement was obtaining the appropriate documents and keeping accounts. When Settlement 3 members were asked if they felt leadership was fairly divided, 7 of 12 household representatives said yes, and 5 of 12 said no. When I asked them to expand on the negative answers, respondents stated in a variety of forms that the majority of settlers cannot read and write so those that can have to work more in the leadership positions.

Technician A of the SJII project reported they are seeing changes in the community associations, in that many of the illiterate adults are becoming literate (Sao Jose Agrario Technician A, 2013). In my sample, I found that a significant number of adults were participating in the adult education classes. Of 93 respondents, 51 had taken adult education classes, and another 17 were already literate, which means only 25 of the target group either were unable or uninterested in adult education classes. This also shows how prevalent adult education classes have been on the settlements. In fact, all eight of the settlements I visited had had adult education classes in the past, and several had ongoing classes. Of the 51 respondents who had participated in adult education classes, 28 still classified themselves as illiterate.

An additional change Technician A reported was that the young people with higher levels of education are entering into association leadership. This opens up space for the state technicians to work with these more educated representatives. The technician saw this as a positive social change that increased the quality of these interventions, “There is a significant improvement in the quality of intervention of these social actors in this field” (Sao Jose Agrario Technician A, 2013, author’s translation). While both access to adult education and increasing education among young people are indeed very positive factors, they have made it easier for project technicians to ignore the problems of illiteracy (with respect to project design). Thus, instead of making

subprojects more accessible to all participants, subprojects can remain dependent on educated participants.

So why is this a problem in light of increasing access and quantity of education? While on average people are becoming more educated, illiteracy is still correlated with poverty. Thus, CDD project structure makes it harder for the projects to reach those most in need. These project structures result in projects biased against reaching the poorest and least educated communities, and against reaching the poorest and least educated within the communities.

5.3 Technical Assistance

In the past section, I established the existence of a skill gap for project participants between the skills they need to carry out the subprojects and the skills they have. SJA project design uses technical agencies to bridge this gap. As such, the initial quality of the project design and the implementation plan were highly dependent on the technical agency and the ability of the technical agency to disseminate this information to the association. The use of technical agencies presented two main problems to the communities. First, the class differences based on education and income give technical agencies power over the participants. This gives technical agencies, particularly private technical agencies, the potential to take advantage of the participants leading to low-quality subprojects. It can also give technicians increased sway over the communities' decision-making process regarding the choice of subprojects. The second problem for the communities was the short time-frame during which technical assistance accompanied the productive subprojects, making it difficult for settlers to overcome subproject problems.

Technical agencies design and implement the subprojects. They assist the settlers in creating the subproject proposal, which also serves as the technical document for the subproject. The technical document, often incomprehensible to the lay person

results in asymmetric information, where the technical agencies have more information than the communities. In most of the SJII subprojects the technical agencies that designed and implemented the subprojects were public, but in SJA many were prepared through private agencies. The settlers (in cases where they are not working with a public agency) had to contract the technical agency to prepare the project document. The SJII project document notes that between 6.5 and 7 percent of the total estimated cost of the SJII project was dedicated to technical assistance and training community associations, SDA, and other agencies that helped implement the project (The World Bank, 2009, 35). Interviews with the State Technical Unit cited that the private technical agencies were paid between 2% and 3% of the approved project (Sao Jose Agrario Technician B, 2013).

If the subprojects were not approved the technical agencies would not receive any money (Coirolo and Lammert, 2009). Accordingly, the technical agencies priority was creating a subproject proposal that would be approved. In so much as the SDA (state technical unit) was able to identify subprojects and reject low-quality subprojects, approved subprojects would produce good subprojects. Yet, the state technical unit was also subject to asymmetric information. The subproject proposals were reviewed by the SDA technicians. If obvious problems were spotted the subproject was rejected outright or sent back to the technical agency to be reworked. One problem with these technical documents was the difficulty for non-specialists to read, understand, and evaluate the quality of the documents. Thus, the SDA technicians, who paid close attention to the documents, still missed problems. As such, problematic subprojects were sometimes approved.

The participants had a much more difficult time spotting problems than the SDA technicians. In a typical business situation, the participants would be the actors with the most incentive to make sure a subproject was well designed. Yet the participants were largely unable to pick apart the technical documents. Moreover, they did not

have the money or connections to hire someone to do this for them. Dependence on technical agencies became particularly problematic when private rather than the publicly contracted technical agencies were introduced. Private technical agencies had the capacity to use the power and information asymmetries between the agency and the association to spend less time and resources elaborating and accompanying the subproject in order to widen their profit margin, sometimes resulting in low-quality subprojects based on bad materials. Strengthening this potentiality, technical agencies faced no repercussions for subproject failure once subprojects were approved by the SDA.

One of the failed irrigation projects illustrates the many problems an ill-designed project can face. Settlement 7's irrigation project first ran into problems when they dug the well for water. The well was around 18 feet deep and was filled with high salinity water. Instead of continuing to drill to reach fresh water, or drilling a new well, or revising the subproject, the technical agency continued on using the salty water. The salty water caused two problems. First, the irrigation tubing diameter was too small and salt and mineral built up inside the tubes blocked the water. Second, the crops chosen, vegetables, banana and papaya trees, did not respond well to salty water and died. Furthermore, the technical agency had also chosen a pump that was too weak to push the water through the tubing to irrigate the whole area. When a state technician visited the settlement, he said the irrigation project had been implemented wrongly, particularly in that the tubing going to the plant root was not in place (Settlement 7, Member 2, 2013). The former president of Settlement 7 concluded,

"... the issue I found is that so many projects that come, the companies that win the right to give technical assistance, they are only interested as long as they are receiving their payment and afterward they do not help ... not even in the beginning. The company won the right to give assistance, both to create a report and to outline the project correctly. This business, part of

"... que a questão eu achei assim que muitos projetos que vem, as empresas que elas ganham para dar assistência, elas têm um interesse só enquanto recebe a parte delas e depois não ajuda não para... nem lá no início né, da... que essa empresa lá ela ganhava para da assistência, tanto com laudo, como também vim fazer as demarcações tudo bem direitinho. Ela, ela... ele essa, essa

Geodata, came here very few times. It did not followup... it did not” (Settlement 7, Member 2, 2013, Author’s Translation). *parte da Geodata mesmo, andou por aí poucas vezes não. Num... acompanhamento mesmo não deu não” (Settlement 7, Member 2, 2013).*

This same sentiment was repeated by participants in Settlement 3 and by the state technical agency, EMATERCE (Settlement 3, Member 2, 2013; EMATERCE Technician A, 2013). In each interview, the same pattern was reported. The technician would come by to do a superficial visit — just enough to meet the requirements of the subproject and get the access to the funds paid out by the state to the technical agencies. The settlers interpreted this pattern as evidence that the technical agencies cared little about the subproject and mostly were using the subprojects to get the state funds. Those settlers interviewed who expressed this opinion came from Settlement 3 and Settlement 7, were both located in Canindé and had been recipients of Geodata technical assistance.

The power differences between the settlers and the technical agencies based on asymmetric information and class created not only the opportunity to take advantage of the settlers for higher profit margins, but even the possibility of engaging in outright corruption. It is unclear to what extent the low-quality subprojects implemented by the Geodata technical agency in my sample (Settlements 3 and 7) were the result of incompetence, taking advantage of the communities or outright corruption. But, there is some evidence that many of the technical agencies in Canindé were engaging in corrupt practices. One SDA technician reported that there had been many problems with corruption of the technical agencies in the municipality of Canindé. According to this technician, many of the technical agencies were actually the same agency but with different names creating a monopoly in this industry. Interestingly, all the subprojects in Canindé in my sample had either failed or were on hold. Three of

these subprojects appeared to have been badly planned, implemented and managed, Settlement 3, 6 and 7's subprojects.⁵

"The technical assistance is dedicated to accompanying [sub]project development, and to checking for the existence of bottlenecks. This was an issue we had a lot. For example, the subproject would not be moving forward, [for example] it had not been released, or it lacked something that was needed for it to be released. So we would sit down with the MST, who were responsible for identifying the bottlenecks in the field and dealing with the following question: What were the limiting factors and what could be done? Then they [the MST] would arrive, reporting, "I visited the community. The subproject ... is not advancing because it does not have enough funds. It is not advancing because the necessary equipment was not bought. It is not advancing because there is no technical assistance. Or it is not advancing because it was ill-designed. There is no company that will work with them." This happened a lot in Canindé. The region of Canindé is a real mafia. They had a real mafia in construction. Usually 3 or 4 companies exist [but in Canindé] it was the same company with several names. So when they entered a bid and won, it was masked by the company name. We found this out, but there was nothing we could do. They [the technical agencies] would get together and raise prices. And they [the subprojects] were very overpriced. A [sub]project you could do for 30 thousand, was always 50 thousand on the nose" [Author's Translation](Sao Jose Agrario Technician B, 2013).⁶

"A assistência técnica que é gerencial no sentido de acompanhar a evolução do projeto, de ver os gargalos. Que aí é uma questão que a gente fazia muito. Por exemplo, eh... o projeto não estava andando, não era liberado, ... alguma coisa para ser liberado. Então a gente sentava com o MST. Por que qual era o trabalho desses meninos? Esses meninos eram identificados em campos gargalos. Né? Quais as limitações e o que é que era possível fazer? Aí eles chegavam, faziam um relatório dizendo, "Visitei comunidade tal. O projeto assim, assado, está nesse pé. Não anda porque o recurso não dá. Não anda porque não foi comprado os equipamentos viabilizados. Não anda porque não tem assistência técnica. Ou não anda por que foi super subdimensionado. Então não dá. Não apareceu nenhuma empresa querendo". Isso aconteceu muito na região de Canindé. A região de Canindé é uma verdadeira máfia. Tinha verdadeira máfia na área de construção. Normalmente era 3, 4 empresas que existia pai, mãe, espírito santo. É. Era a mesma empresa com vários nomes. Né? E aí eles entravam numa licitação e ganhavam. E era mascarado pelo nome da empresa. A gente descobriu isso aí, mas também não tinha como atuar. Aí eles juntavam e botavam os preços tudo lá para cima. Né? Aí era superdimensionado. Um projeto que você podia fazer era 50 mil, mas com 30 mil dava para fazer, nesse caso era os 50 mil certinho. Interessante é que dava exatamente era os 50" (Sao Jose Agrario Technician B, 2013).

⁶Fifty thousand USD was the exact limit of the funds available per subproject.

Another important potential problem stems from the power differential based on class and education between project participants and the technicians. Generally, participants are less experienced, less educated, with a rural low-income background compared with the technicians they contract. Participants often presume technicians are experts and defer to them in aspects of the projects. They often feel intimidated

⁵Settlement 5's subproject (the fourth subproject from Canindé) appears to have had different reasons for its problems, outlined below.

to question the technicians especially when they do not have a long-term relationship with the technicians. The outcome is that sometimes technicians are able to unduly influence the type of subproject the participants vote for. “Project actors [technicians] are not passive facilitators of local knowledge production and planning. They shape and direct these processes” (Mosse, 2001).

One of example of this outcome is that of Settlement 5. Settlement 5 received the funds of R\$58,800 for an apiculture (bee-keeping) project in 2008. The settlers had entertained possible projects such as irrigation, building a new reservoir, reinforcing the old reservoir, raising fish, or growing fruit trees. The most popular of these was irrigation for vegetable cultivation. The settlers were swayed toward the apiculture subproject by an assisting technician’s predilection for beekeeping. One state level technician mentioned that one of the municipal level technicians from Canindé was partial to apiculture projects (Sao Jose Agrario Technician B, 2013). I checked this with the approved list of projects by municipality. Of the total 163 projects, 10 were apiculture projects, and of these ten, five occurred in Canindé.⁷ The other five were spread out over five different municipalities. Apiculture subprojects in the municipality of Canindé made up 22% of the subprojects, in comparison with 4% of all subprojects outside of the municipality of Canindé. This seems to confirm that there was indeed a technician with a preference for apiculture subprojects in Canindé and that the technician was able to influence communities to take on these subprojects. While many of the settlers were initially intimidated by the bees they were convinced this was the best option and the majority voted for this project.

Subproject participants’ most common complaint relating to the SJA subprojects was the lack of quality and quantity of technical assistance. Aside from the technical agency problems of using power to take advantage of communities and corruption,

⁷Canindé is particularly well-represented municipality in that it had 23 SJA projects. This is due to a large quantity of settlements in this municipality.

additional principal problems were the short timeline over which the technical agencies accompanied the subprojects and the frequency of their visits. The quantity of technical assistance, its timeline and frequency of visitation to the communities is a problem of project design and lies with the World Bank as the funder. Productive subprojects need extensive technical accompaniment, particularly since the projects and necessary are generally new to the communities. Learning-by-doing is the main way the settlers gain knowledge about how to implement, transport, market and maintain their subprojects. The subprojects require technical assistance spanning three or more years — a time frame which allows problems and practice to arise organically and be dealt with in their own context. Yet, SJII and SJA accompanied the project from its acceptance until its implementation, often less than one year.

Not only was the time frame short for technical assistance accompaniment but the subprojects only had a small portion of their funds dedicated to technical assistance (Sao Jose Agrario Technician B, 2013). The technical agency that designed and approved the subprojects receives between 2 and 3 percent. Most technical agencies did not accompany the settlers beyond the initial construction of the subproject. In fact, the technical agencies explained to subproject participants that their percent cut from the subproject was not enough to cover technical assistance beyond one or two subproject visits. Since the technical agencies were often located in the capital of Ceará, Fortaleza, they had to travel to the settlement in order to provide assistance, making it more expensive (Sao Jose Agrario Technician B, 2013). Thus according to this technician the private technical agencies that elaborated these subprojects provided little actual technical accompaniment of the subproject. The following is what one technician answered when asked why there was such a small percentage of the subproject funds set aside for technical accompaniment.

“Actually it was not foreseen in the planning. It was thought that because there were already technical agencies [that were collaborating], which were EMATERCE [productive sub-

“Na verdade não foi previsto no planejamento. Se achava que como havia as entidades, ... a EMATERCE [productive projects], a SEMTEC [social projects], a SOHIDRA [water projects], a

projects], SEMTEC [social subprojects], SOHIDRA CAJECE (water projects), se achava que essas [water subprojects], CAJECE [water subprojects], they thought that these same agencies — which were the agencies that elaborated related projects in each area — would provide technicians for accompaniment. But we observed, for example, that EMATERCE has a very wide range of activities. They are involved in several projects: seed distribution, eradication of foot and mouth disease in the state of Ceará, technical assistance to groups of select producers. They did not have enough technicians for all this. In the area of productive [sub]projects it was more serious because EMATERCE's technicians were unavailable for this. At no point did the SDA think about the [sub]projects, in [having] technicians other than these ones for accompaniment. Now we have deemed that for a project to be successful, it necessarily needs to count on the acting presence of an EMATERCE technician, or if not, we will contract technicians directly with the SJ Project in order to place them with these groups [participating associations]. So without [accompanying technicians] it will be a failure" (Sao Jose Agrario Technician A, 2013, Author's Translation).

próprias entidades – que são as entidades que elaboram os projetos relacionadas em cada area —, [que] elas mesmas disponibilizariam técnicos para fazer esse acompanhamento. Mas nós observamos, por exemplo, que a EMATERCE tem um leque de ação, um raio de atuação, muito amplo. Eles estão envolvidos com vários projetos, distribuição de sementes, erradicação da ... febre aftosa do estado do Ceará, a assistência técnica a grupos e produtores seletos, e tudo. Eles não tinham técnicos suficientes para isso. ... Na área de projetos produtivos foi mas grave porque nós não contávamos com a disponibilidade de técnicos da EMATERCE para isso. Em nenhum momento a SDA pensou em projetos, em técnicos outros a não ser esses para acompanhamento. Agora a gente já definiu para poder um projeto ser exitoso, precisa necessariamente contarmos com a presença, com a atuação de um técnico da EMATERCE. Se não, a gente vai contratar diretamente com o projeto SJ esses técnicos para alocar junto com aqueles grupos. E sem isso daí também é um fracasso, né?" (Sao Jose Agrario Technician A, 2013).

Technical agencies unassociated with the SJA project, but which were already operating in these communities took on some responsibility for these projects. For example, technicians contracted by INCRA and the state (public agencies), were providing technical assistance in the settlements, around themes specific to agrarian reform and the creation of the settlements. These technicians were generally sensitive to the settlers' needs and contributed their expertise to the subprojects, but this was not their main task and occasionally the subprojects were not in their area of expertise. For example, EMATERCE, the state funded technical agency, was often expected to cover when there was insufficient or needed technical assistance — both in terms project design and in technical accompaniment. Unfortunately, this overextended an already taxed institution and EMATERCE found it difficult to organize resources and people to accompany these projects in a comprehensive manner (Sao Jose Agrario Technician A, 2013).

To some extent these lessons have been learned, SJIII has set aside more funds for the state to hire technicians for accompaniment but only for the first year of the project. “Technical assistance to investment operations will be provided preferably through publicly funded Rural Technical Assistance (Assistência Técnica e Extensão Rural, ATER) or through private-sector providers for at least the first year of execution, based on eligible business plan costs” (The World Bank, 2012, 27). Technician A noted that it would be preferable if this was two years since the first year is mostly dedicated to the solicitation process (Sao Jose Agrario Technician A, 2013).

SJIII will now allow participants to follow commercial practices instead of conducting a formal bidding process, in which they receive at least three bids, for the procurement of inputs and technical agencies. The WB justifies this on the assumption that “Market forces would ensure a fair and reasonable price while competitive markets would be the driving force leading to POs [producer organizations — same as community associations] having efficient internal operations” (The World Bank, 2012, 50). Moving away from a bidding process, which is foreign to the communities and presents an additional layer of bureaucracy, to a more common commercial practice is a step in the right direction. Unfortunately, problems of asymmetric information and lack of power will persist for the participants within the market. Goods and inputs most commonly bought and sold may be bought by participants for market or close to market prices. On the other hand, services — such as contracting private technical agencies — in which the available prices may be difficult to know and which the communities cannot infer from the peers experience, since their peers likely are not often contracting technical agencies, may continue to be priced above market — or the quality of the service for the price may be below what is commonly expected.

In SJIII, these problems remain. The time frame for technical assistance is too short and the use of private technical agencies may put subproject participants at a disadvantage.

5.4 Subproject Failure: Participation and Attrition

The CDD project design is based on the ability of the participants to make an accurate cost benefit analysis which informs their decision to participate in a subproject. Project design assumes poorer individuals will organize to obtain subprojects because their opportunity cost will be less than that of relatively wealthier individuals while the wealthier individuals would find a cost-benefit analysis unfavorable to taking on the project. In this way, community-driven development project funds will reach their target of the relatively less well-off. “Communities as a whole, or specific community groups, must decide whether or not to submit a proposal for a project based on the implied level of benefits and the cost of participation. The assumption for targeted social funds is that the level of benefits is too low to make participation advantageous for the better-off” (Mansuri and Rao, 2012, 163).⁸

The opportunity cost consists of three parts. The first part is the ten percent of the subproject grant the participants must provide in cash or in kind (they almost always choose in kind labor). The second part is the time and effort spent on the subproject, often a couple of months or longer to implement the subproject. If it is a productive subproject, this may mean an increase in daily or weekly work for the foreseeable future. The third part is any monetary inputs the participants must make to keep the subproject running.

The decision to participate in the subprojects assumes individuals have access to excellent information on subproject costs and benefits. As such, individuals can make a fairly accurate decision of whether or not to participate. Thus, following these assumptions, subproject failure is a problem of moral hazard. Participants take on the subprojects even when they expect them to be very risky, resulting in a high rate

⁸Social funds are similar to community-based development projects and community-driven development projects (Mansuri and Rao, 2012).

of attrition. The policy response by the WB is to increase the cost of the subprojects to participants to make attrition more costly.

I argue that the reason for which the participants in my case studies leave the subprojects has little to do with moral hazard. Instead, the reasons are a lack of information, dependence on a variety of actors and agencies willing to take advantage of the participants, and insufficient technical assistance in productive subprojects. Requiring additional buy-in will prohibit the poorest from accessing subprojects and bias the subprojects against those whom they supposedly target.

From 1993 to 2007, the CDD projects in Ceará were centered primarily around providing water, fencing, and electrical infrastructure. Communities were able to more easily estimate their costs (only labor) and benefits (access to water, electricity and having a fence) because they were more familiar with both the process and the outcome of these subprojects. While the labor requirements were often significant, they were of a short duration and, once the project was in place, it required relatively little labor to maintain.

As the CDD project began to move toward productive subprojects, costs and benefits to the participants became more difficult to measure. In particular, this difficulty stemmed from participants having little experience with the types of productive subprojects available to them. The productive subprojects the communities took on often required new types of crops, animal husbandry, and even new methods (such as irrigation), as compared with what the majority of families are accustomed to. Participants had little information on which to base their decision to participate in the productive subprojects. They did not have experience with these subprojects, and they did not have the technical expertise and education to parse the technical subproject documents. As such they relied on advice and opinions from the state government technicians, the MST, community leaders, other participants, and largely on their own intuition of what might be best for them given these actors' information.

The difference between the infrastructure and productive subprojects is outlined in the Table 5.4. The main difference occurs in Stage 3 and 4. In these stages, productive subprojects are still evolving. I categorize the Incubation Stage as the time in which the subproject requires participant labor, sometimes participant monetary contributions but does not yet have marketable output. In the Output Stage, there is output which must be transported and marketed, again requiring participant labor and monetary contributions. Only in the Output Stage will the productive subproject contribute directly to income increases for the participants. An important difference between infrastructure and productive subprojects is the difference in time between implementation and outcomes. For infrastructure subprojects, this is relatively short, whereas for productive subprojects the time gap can be significant.

Table 5.4. Infrastructure and Productive Subproject Stages

	Stage 1	Stage 2	Stage 3	Stage 4
Infrastructure	Approval	Implementation	O&M	None
Productive	Approval	Implementation	Incubation	Output

Author's typology.

Productive subprojects are new for the groups and they often they have little experience with the crops, transportation of production, and marketing goods. Additionally, often these subprojects face unanticipated problems, such as crop or animal diseases, equipment breakage, salinization, difficulty in transporting goods to market, and difficulty marketing the product. The majority of these problems arise in Stage 3 and 4. Many of these problems require significant technical expertise, contacts, or additional resources to solve. Such problem-solving requires increased effort, sometimes increased monetary costs, and makes output less certain.

A potential solution to these problems is long-term, public, high-quality technical assistance. Unfortunately, while the infrastructure subprojects were provided technical assistance through their most important stage — Implementation — productive subprojects lacked technical assistance through their equally important Incubation

and Output Stages. This is a particular problem for the productive subprojects, in which a large amount of the work occurs in the Incubation and Output Stages. The duration of technical assistance in the SJA project is a holdover from the previous CDD projects that placed greater emphasis on infrastructure subprojects.

“A major problem with donor-induced participation [this includes the World Bank] is that it works within an ‘infrastructure template’. Donors’ institutional structures and incentives are optimally suited to projects with short timelines and linear trajectories of change with clear, unambiguous projected outcomes. When a bridge is built, for instance, the outcome is easily verified, the trajectory of change is predictable, and the impact is almost immediate. Unfortunately, most participatory projects that emerge from donor agencies are designed with the same assumed trajectory and three-to-five-year cycles as infrastructure projects” (Mansuri and Rao, 2012, 109).⁹

Productive subprojects require technical assistance over a much longer timeframe than do infrastructure subprojects. In the absence of technical assistance, the cost and the ability to access the solutions to project problems may induce the subproject participants to revise their participation decision and result in attrition from the subprojects.

Analysis of CDD subprojects has not dealt with the resulting project design flaw: the assumption that participants can make an accurate cost benefit decision to participate in a *productive* subproject. The result is that participants make a decision to participate, often based on what other members decide or on what other actors influence them to do. When they get updated information, they then leave the subprojects. In this section, I describe how this process plays out through case studies. In the appendix to this dissertation, I present a model which show how this process can occur and how relatively small fluctuations in participation can result in project failure. The conclusion is that participant attrition from SJA subprojects is a rational response to updated information, rather than a result of moral hazard.

⁹The donors refer primarily to the World Bank.

5.4.1 Case Studies

My case studies showed that half of the productive CDD subprojects I studied had either group attrition or significant individual attrition. At a point either collectively or individually participants decided not to continue with the subproject. Of the six productive subprojects, two had failed outright, one is on hold, and three are ongoing. Table 5.5 below gives a quick overview of the subprojects. As we can see in Table 5.5 participation in the subprojects was varied. In two cases, Settlement 4 and Settlement 8, all surveyed settlers were participating in the subproject. These also corresponded to successful productive projects. The rest of the subprojects had 46% to 91% participation.

I argue that the ongoing participation decision is impacted by subproject performance, problems, and prices of inputs and outputs. Since the subprojects are voluntary and participants can drop out at any time but cannot rejoin, I can get an estimate of attrition, which allows me to evaluate the ongoing participation decision. I estimate attrition by using the number of eligible families versus the number of families who participated from my census survey in 2013. This can be complemented by comparing it with the number of families who were originally part of the subproject according to the SJA statistics (compiled between 2007 and 2010, depending on the project start date). Since I was not able to survey all families formerly part of the subproject, I use the number of families at the start of the subproject as a benchmark. The primary reason I was not able to survey all households who were initially part of the subprojects was due to households moving on and off the settlements and a lack of records of who was initially a part of the subproject. I conducted a census survey of all households on the settlement, including unregistered households when members indicated they also took part in the subprojects. I have between a ninety and one hundred percent response rate.

Table 5.5. Participation in Sao Jose Agrario

Settlement	SJA Subproject	No.Fam. At Start	Total Fam Interviewed	Part/Eligible Fams	Success
Settlement 1	Cashew	42	14*	14/14=100%*	Ongoing
Settlement 3	Irrigation	16	12	10/11 = 91%	Failed
Settlement 4	Capim	10	10	10/10 =100%	Ongoing
Settlement 5	Apiculture	22	19	11/15 = 73%	On-Hold
Settlement 8	Tractor	23	17	17/17 =100%	Ongoing
Settlement 7	Irrigation	27	25	11/24 = 46%	Failed

Number of Families at the start is the number of families officially registered in the project by the government/MST statistics in 2007/2008. *I only conducted a sample (14 households) of the total households in Settlement 1. Thus, this is just suggestive, and I do not have information on the whole settlement's current participation in the SJA project. Total fams are the total number of households surveyed in each settlement. In Settlements 3 through 8, I conducted a census survey, and the number of surveyed families eligible to participate is the denominator, the number who said they are currently participating in the project is the numerator. Failed indicates the subproject did not exist at the time of visit.

It is interesting to take a look at what happened in each of these cases. I begin with Settlement 7 and 5 which had high levels of attrition, I then turn to Settlement 3 which had a failed subproject but high levels of participation.

Settlement 7's productive subproject faced a number of problems outlined in past sections. By the time the subproject was deemed a failure by the participants, Settlement 7's irrigation project had the lowest participation rate of all the settlements at 46%. According to the statistics collected at the beginning of the subproject by the SJA officials, it originally had a much higher proportion of the settlers involved in the project, 27 participating families. Yet, when I interviewed 25 of these families (of which 24 were eligible), only 11 said they had been participating when the subproject ended. The settlers had dropped out between choosing the subproject and when the subproject failed. My survey revealed that households defined different main subproject problems. This indicates households dropped out at different times over the first year of the subproject, based on identifying different problems as insurmountable.

After a year, the remaining participants found the subproject unfeasible and ended the subproject together.¹⁰

Settlement 5's subproject faced two main problems. First, the settlers had little knowledge of bees and beekeeping and found the prospect intimidating. Settlement 5's subproject has a fairly low participation rate of 73%. Many people I spoke to did not want to work on the beekeeping subproject. They cited reasons such as: having too many things to do, having another loan to pay off, because other subprojects had not been successful, and because they had wanted a different subproject. While all families had initially voted for the subproject and agreed to participate, four currently living on the settlement had dropped out (and more had dropped out when they left the settlement). Second, once the bees had successfully produced honey, the settlers had a difficult time marketing the honey. They also did not like honey and thus did not use their own production. According to interviews they had been unable to sell any honey following the first year of honey production. The following years the region faced a drought. Lacking flowers the bees had to be fed. The settlers were required to buy sugar, make the sugar syrup, and distribute the syrup in order to prevent the bees from dying. Even so, they estimated only half the bees were currently alive. Only four families were currently contributing money and distributing the sugar syrup for the bees. The subproject was on hold when I visited in 2013. The participants had left the subproject at two points. First, when it was confirmed as a beekeeping subproject and second, when they were unable to market the production.

Settlement 3 implemented an irrigation subproject for fruit trees, primarily bananas, in 2009 for R\$9,700. The money covered paying the technical agencies that assisted them, buying the irrigation pump, and setting up the irrigation system. They

¹⁰Interestingly, when this happened four of the families who were part of the last group to leave the subproject claimed the land upon which the subproject had been placed, pulled up the hoses and planted the land as individual plots of corn and beans. This is particularly good land as it receives more moisture than other land.

planned to sell the bananas at the local fair. The subproject went well for about a year. In that time they planted and watered the banana trees. The banana trees started producing bananas, these bananas were consumed on the settlement and sold to a middle man to take to market. At around the year point, the participants grew disillusioned. In interviews, the participants cited the problem of the cost of electricity to run the electric irrigation pump. This was around R\$250 – 300 per month and was not covered by the subproject grant. Participants also found the low price received from the middleman insufficient to cover the cost of electricity. Interviews suggest that the settlers decided as a group to abandon the project. While the project was abandoned, 90% of settlers said they participated in the subproject up until the group decided to end the subproject. When I arrived, they had ceased to water the banana plants and had no plans to continue in the future. Only around 10% of the banana trees were still alive.

Settlement 3's subproject failed because the price they were able to obtain for the bananas was not sufficient to cover the cost of electricity. There were several reasons for this. First, the price of bananas varies with the market. It may have been difficult for the participants to accurately foresee the price they would obtain. Second, the participants were receiving the price the middleman gave them, not that the consumer pays. Transporting the product to the market and finding a market for the output requires capital, skills, and networks the participants often do not have. At a disadvantage, they may not be able to obtain a price that would allow them to cash flow. Third, the settlers were paying the full price electricity, instead of the available subsidized price. The community was aware of the option to apply for subsidized electricity but was unwilling to apply due to the bureaucratic application process.¹¹ The group did not see either the application for cheaper electricity or

¹¹Settlement 2 had successfully organized and received the subsidized energy program for a different and ongoing irrigation project they had received through a Belgian NGO.

the produce from bananas as sufficient to cover their costs and/or superior to their fallback position. Additionally for the cash-strapped, monthly out of pocket costs no matter how minimal may be prohibitive.

5.5 World Bank Response

The World Bank and the Department of Agrarian Development have recognized that projects often fail due to attrition. To address the problem, the newest incarnation of the São José project (São José III) requires participants to provide twenty percent of the project grant, of which ten percent must be in cash and ten percent can be in-kind or cash. Previously in SJII, this contribution was only 10 percent of the total, which could have been provided in-kind.

“In order to receive funds from SDA, each beneficiary will need to prove that the equivalent of at least 20 percent of the total amount being advanced has been allocated as counterpart to the respective projects, observing that in-kind payments cannot be more than 10 percent. The remaining 10 percent would need to be either the beneficiary’s own proceeds or other sources at his/her disposal (e.g., grants, commercial bank financing, cofinancing, etc.). Such amounts will not be considered by SDA when disbursements are requested under loan proceeds” (The World Bank, 2012).

Since, these communities are poor it can be difficult to come up with cash to provide the counterpart funding in cash or credit. The SJA subprojects went up to USD 50,000 and the SJIII productive subprojects are expected to have an average cost of USD 160,000 (ten percent of which would be USD 16,000). Most poor and very poor communities will not have USD 16,000 on hand, as such the project relies on community ability to access credit. Interestingly, the SJII project realized that these are exactly the communities that have a difficult time accessing credit.

“Since the rural poor are generally out of the radar screen of any formal credit institution in the rural Northeast, particularly as individuals, project matching grants for productive investments and technical assistance can be catalytic by encouraging the formation of groups, providing

some experience in the management of financial assets and income-earning activities, and thus making them more attractive to financial institutions” (The World Bank, 2001).

The increased contribution requirement suggests that the World Bank and the Department of Agrarian Development have identified moral hazard as the cause of attrition. According to this view, the original design led participants to knowingly take on projects that were too risky. This policy change still assumes participants can accurately evaluate project costs and benefits.

Requiring additional ‘buy in’ will not eliminate attrition as a source of subproject failure. In fact, it will exclude the poorest from participating in the subprojects as they will be unable to provide ten percent of the subproject cost in cash, whereas in many cases they can provide it in labor. For example, one can argue that participants in the previous São José subprojects had already ‘bought’ into the subprojects, having provided significant labor and in some of the productive subprojects, money for electricity or other inputs. In my case studies, they were reluctantly walking away from projects when they did not see any possibility of making a positive return. Rather than taking on a subproject knowing there was a high risk of failure, participants took on subprojects assuming subproject success with little ability to foresee subproject costs and benefits. Greater ‘buy in’ will not increase the ability of the participants to predict subproject costs and benefits. In fact, participants gain little from failed projects — as failure results in the death of the plants, animals, and equipment breakage — but they lose all the time, labor, and money they put into the project.

Thus, the problem is not one of moral hazard and the fault for subproject failure is difficult to lay at the feet of participants, except to the extent they are faulted for having less education, skill, power or networks. The solution here is not one of additional buy-in. To some extent, many of these problems could be ameliorated with additional technical assistance. Other problems may require a change of subproject

design for productive subprojects. Or it is possible, that there may not be viable subprojects.

In summary, CDD project design assumes that participants will self-select into subprojects based on the type of subproject and on a decision rule weighing their costs and benefits. In the absence of information concerning subproject costs and benefits concurrent with the assurances a subproject will increase their production and commitment to the group, many individuals are willing to try a new subproject. When costs and benefits deviate from what the participants initially expected, they may incur negative returns leading to attrition from the subproject, and in some cases subproject failure.

5.6 Conclusion

I've presented a possible explanation for why projects fail, even when problems of elite capture and free-riding are avoided. Participants leave the CDD projects when they discover the projects have lower benefits and higher costs than what they initially expect. The difficulty in assessing project costs and benefits derives from the CDD project design which has promoted unfamiliar projects and technologies. The problem is further exacerbated by providing insufficient technical assistance. As such, when project problems appear, the settlers have few resources with which to address them.

CDD project design assumes that participants will self-select into the projects based on the type of project and on a decision rule weighing their own costs and benefits. In the absence of information concerning project costs and benefits, many participants are willing to try a new project. When costs and benefits become clearer over time, they may not find the project to be worthwhile leading to attrition from the project, and in some cases project failure.

Participatory development builds from what participants know. The CDD projects I reviewed required knowledge the majority of participants did not have. The very structure of the project is heavily based on literacy, technical documents, and bureaucratic processes. While almost 30% of members were illiterate, even the most educated would have difficulty deciphering the technical documents. Instead of settlers learning to rely on themselves and their knowledge, they must rely on a host of others to complete the project. These include technical agencies, technical accompaniment, the SDA, the MST, and the younger generation. While these groups may do their best to assist the participants, such a structure does little to empower them.

Technical assistance plays an essential role here both in the creation of the project, accompanying the project, and disseminating information about the project to the participants. All of which could be improved. Technical assistance should have a much longer timeline, accompanying the projects from the initiation through a couple years of maturity in which they are integrating into the market (if that is their objective — and it is the objective for most of the WB projects). The technical agencies preparing the project should provide a clearer understanding of expected costs and benefits, the potential problems that will come up, how to deal with these problems, the prices the settlers are going to need to receive and the quantities they will need to sell in order to cash flow. The dissemination of such information needs to be done in a non-technical and inclusive manner.

The CDD model could be amended in two possible ways. One way would be to only fund projects of which settlers had intimate knowledge. The settlers would design and implement the project themselves and would not rely on technical agencies. In this case, the project implementers would have to divorce themselves from the typical technical document. A proposal might be developed verbally with a simple written document. The budget would also be simple, and accounting would be restricted to keeping receipts and matching these with their bank account. Clearly, this would

have to deviate from current project design and budgeting. A CDD project in this form would have to be on a smaller scale, difficult to scale up, and more dependent on the local intermediaries.

A second way to amend the CDD model would be to cease to think of itself as a bottom-up strategy funding what the communities prioritize and reorganize itself around a series of projects that have proved viable. These projects would be standardized to some extent. Communities could apply for specific projects which would come with extensive accompaniment through all phases of the project until the project has reached maturity and self-sufficiency (in the best case scenario or collapsed in the worst case scenario). In addition, as these projects are standardized they could work with specifically trained technical agencies that have proven themselves trustworthy. In addition, groups who have already received the same project can work with the new groups to problem solve and create knowledge banks.

CHAPTER 6

CONCLUSION

Participatory development takes many forms. In order for the World Bank to use a participatory approach that can be applied globally, they have created a trajectory of steps communities and individuals must go through. Such steps are modified to the country, and often to the state level, but not to the individual or community level.¹ For this reason, this project-based approach can be questioned as to how truly bottom-up it is.

The São José Agrário project studied here came out of both a project-based approach and out of a more radical approach rooted in collective action of a social movement, the MST. Agrarian settlement members organized with the Landless Worker's movement to occupy the state technical unit offices to demand access to the project funds. The MST, in receiving project funds for agrarian settlements and the state technical unit, in being willing to partner with the MST to direct and accompany the project, created a union between the project-based and the radical approach to participatory development. This unique union provided solutions to some of the main problems of community-driven development, problems which also appear often in other approaches to project-based participatory development as well. I document the solutions these communities found to the recurrent problem of free riding and how they prevented elite capture. While the communities were able to solve these problems, almost half the subprojects in my sample still failed. This study then identifies reasons for subproject failure.

¹The *subprojects* are modified at the community level.

The state technical unit of the São José Agrario project must be commended for their willingness to work hand in hand with the Landless Workers Movement, as must the Landless Workers Movement for working hand in hand with the state technical unit. The state technical unit is obliged to document and account for the funds they disburse by the World Bank, and as they give control of funds over to communities themselves, they must convince and train communities to follow accounting procedures, along with other project paperwork rules. Most community members have little experience with the bureaucratic necessities of providing documents of identity and proof of registration in the settlement, creation of subproject proposals, managing bank accounts, keeping accounting records, and so on. From their point of view, the process results in just a series of hoops they must jump through in order to receive subprojects. Some of these hoops are fairly difficult for the settlers given their education, the distance they must travel to accomplish such tasks, and the time it takes to obtain documents. These hoops, even when they manage to jump through them, can result in delays of subproject inputs and funds. In the sertão, such a delay may mean you are planting in the dry season without irrigation and can result in large losses. The practical day-to-day responsibilities of each, the state technical unit in meeting WB goals and the MST in reaching community goals, are often at odds making such a union difficult. Yet, together they completed the SJA project, which may have had a higher rate of success than the larger SJII project.²³

When measuring the impact of CDD projects, a common problem is measuring empowerment. Indeed one of the main goals of the projects is empowerment. Yet it can be difficult not only to determine a proxy for such a measure, but it is also difficult to know the time frame over which to measure empowerment. The communities in

²Interviews indicated this was the case, but I was unable to gain access to statistics on overall subproject success and failure for either the SJA project or the SJII project.

³At the time of my visit, the MST did not want to get involved in the current version of the project SJIII, citing frustration with the bureaucratic nature of SJA.

my study (or at least some of the participants) had become more aware and skilled at dealing with government bureaucracies. One might conclude they had been empowered to deal with a specific set of government bureaucracies. I suspect this is not the outcome or meaning of empowerment the CDD approach is advocating. Yet, it is not a trivial skill to learn, particularly in the context of repeated lines of project funding. While the CDD project documents imply communities will only receive one São José project, communities had received a multitude of other projects. Some subprojects were funded through the state government, some were funded through the Catholic Church, one had been funded through the United Nations, one had a project funded through a Belgian NGO, another project was the result of a pair of French engineering students' final project for their university. If indeed these communities are accessing projects and funds from around the world, such empowerment is useful.⁴

Elite capture is a persistent problem of CDD projects. The larger São José II project faced problems of elite capture, primarily in the intervention of political elites in the project. This is unsurprising as the Brazilian Northeast is host to a long history of patron-client relationships. The São José Agrário project was able to overcome clientelistic elite capture via the involvement of the Landless Workers Movement, which helped to identify and reach agrarian reform land recipients and to ward off the intervention of politicians. Elite capture from within the agrarian settlement communities was avoided due to community homogeneity, equal distribution of political power, and a history of collective action.

The settlement communities also overcame the free rider problem. The settlement norms and institutions created a framework whereby problems of collective work could be solved. I identified the institutions specific to the settlement collective work and

⁴Many of these previous projects had either broken or been abandoned when I visited the communities. Yet, the communities that had historically received more projects did seem to have higher incomes. The direction of causality is unclear — communities that were better off received more projects or communities that received more project were better off.

those of the São José Agrário subproject work. The institutions of the agrarian settlement collective work were robust to emergent problems, providing routes along which such problems could be solved. In comparison, the institutions of the SJA subproject work provided few internal ways to solve emergent problems. The settlers primarily solved their free rider problems in the SJA subproject by relying on the agrarian settlement collective work institutions. This implies communities that do not have a history of collective work and who do not already have robust institutions may have difficulty solving the free rider problem within CDD projects.

I located project failure in problems of project design, specifically the way empowerment is operationalized, as well as problems stemming from the technical agencies and technical assistance. Project participants are expected to be empowered through choosing, implementing and controlling subproject resources. The project assumes that participants have the greatest interest in their subproject succeeding, and thus assumes giving them free reign to contract input suppliers and private technical agencies will result in the participants getting the highest quality products at the lowest price. This assumption disregards the power differences between participants, and suppliers and technical agencies. Such power differences result from class, education and urban versus rural divisions. Participants, instead of becoming empowered in their dealings with these actors, can be taken advantage of by the input suppliers and technical agencies, who sometimes provide low-quality inputs and implementation in pursuit of their profit motive.

Another main problem my study identified was the duration of technical assistance. Technical assistance is of too short a duration for productive (livelihood) subprojects. This is a direct result of adapting the CDD structure from the infrastructure subprojects to the productive subprojects. Productive subprojects are ongoing projects, in which equipment breaks, crop and animal diseases occur, participants must learn how to market their goods, and find ways to transport their goods to

a market. One year or less of technical assistance is hugely insufficient for productive subprojects.

There are limitations of this study. It accurately represents the communities included in the sample, and the sample represents the population per my selection criteria, but this led to a very small population. One cannot generalize empirically beyond the case studies investigated here. The structures and outcomes of the SJA subproject implemented in larger settlements (which can have hundreds of households) would most likely be different.⁵ It cannot be generalized to address the larger SJII project, as many communities selected for subprojects in the SJII project were not agrarian settlements. The study did not attempt to measure the overall rate of success and failure of the whole SJA project. Instead, this study provides keys as to how a particular project and group of communities overcame problems of collective action but also provides insight into reasons for subproject failure. It identifies some weaknesses of project design in this context and some ways in which these weaknesses were addressed.

The strength of this study was in providing an account of the processes of these eight subprojects implemented under ideal conditions for a CDD subproject to succeed. The settlements are fairly homogeneous regarding background and place of birth. The members are relatively similar in terms of income and assets. The communities are fairly small and allow everyone who desires, the chance to take on a leadership position. All people are expected to participate in decision-making processes. Small-size and the inclusion of most community members facilitate community organization. The settlements have a history of collective action and collective work. This experience provides a solid base from which to engage in CDD subprojects.

⁵The subprojects themselves would still be limited to around 10-30 families. So the whole settlement would not be taking on the subproject but rather a smaller group within the settlement.

In this study, I have said that four of the subprojects had succeeded. My criteria for success was that the subprojects continued to exist when I visited the settlement, 3-6 years after the subproject had been implemented. Yet, I found that even in these successful subprojects they had done little to directly increase the consumption or the production of the settlements. These included two fence subprojects, a tractor, a cashew plantation, and a *capim* (feed for cattle) field.⁶ The fence projects and *capim* production may have decreased cattle loss and perhaps increased cattle weight, thereby indirectly increasing income. The cashew plantation takes five to seven years to mature. The settlement had not yet been able to sell the fruit or the nuts in the market. The drought had stressed the trees and they were dealing with some tree diseases. But the settlement had also found another source of funding to build a cashew processing plant that would enable them to process and sell the nuts, a soda and a sweet made from the fruit. If they were able to treat the crop disease, they had placed themselves in a position that may lead to increased income, given they can transport and market these goods effectively. The community that received the tractor, due to soil erosion worries and the fact that the settlements themselves have many state and national restrictions on the expansion of farming plots meant the settlers were unable to increase the amount of land they farmed. They did rent out the tractor to other communities, but the income was minimal and was saved for tractor repairs. Overall, these subprojects are not transforming recipient's lives.

If such subprojects cannot provide significant increases in income or production in such communities, as in my case studies, it seems unlikely they would be able to do so in less ideal circumstances. As such, it raises questions regarding the viability of the CDD approach, particularly with respect to productive subprojects.

⁶This adds up to five because Settlement 4's subproject included both a fence and planting a *capim* field.

I identified several problems of project design, based on my analysis and observations, as well as what community members, the social movement, and the project technicians described. To those working with the subprojects, many of the problems I have identified are most likely obvious. This raises the question: Why haven't the WB and the SDA resolved these problems, particularly when the WB and the SDA have been working with these subprojects in Ceará for twenty years?

The WB and SDA have only in the last ten years had a significant number of subprojects become productive subprojects. As such, there has been a new round of learning-by-doing. This process has identified the following problems: insufficient technical assistance, access to markets, and transportation of goods to the market. The WB and the SDA have tried to resolve many of these problems in the newest SJIII project. Unfortunately, the steps taken place the onus to solve the problems in the communities. For example, in the subproject proposals for SJIII, communities must have a marketing plan to ensure once they have a product they can sell it. Thus, the very communities that are finding entry into markets a major obstacle to subproject success are now tasked with finding entry points prior to even taking on the subproject. From a technical standpoint, this would be a rational approach when dealing with capacitated communities with access to resources and networks. Practically, they are making the communities responsible for the very problems they have the most difficulty overcoming. Instead of facilitating entry into markets via some type of support (e.g. public technical assistance), the new project design requires the problem to be resolved before applying for the subproject. As such, this may make the entry of poorer communities into these subprojects, either even more dependent on the quality and implementation of the technical proposals created by the technical agencies, or create an additional obstacle to subproject entry.

The lack of technical assistance, a problem identified by all actors in the subprojects, has only been increased to around a year. This is still not sufficient to deal with

the myriad new problems facing the productive subprojects. Many crop diseases and equipment breakages will occur following the initial year. The problems of transporting goods and accessing markets will also most likely be occurring following the first year. As such, technical assistance will not be available to support the communities when many of the problems identified above occur.

Additionally, they have raised the community counterpart funding of the subprojects to 20% (of which 10% must be provided as funds) of the subproject cost. Raising the entry fee into the subprojects also indicates the World Bank has identified moral hazard as a problem leading to project failure. I have argued that this is not the case. In fact, the communities have little information with which they can predict subproject risk, subproject benefits, and subproject costs. They are only able to calculate such factors after becoming involved in the subprojects. Additionally, the many obstacles the participants face, the few resources, networks and limited technical assistance they have access to limits the success of their subprojects. By increasing the entry fee, poorer communities will be excluded from the subprojects. Together I expect these changes to make the subprojects more difficult for the poorest to access.

As mentioned before, this is only a small case study of the São José Agrário project. A more comprehensive survey of the rate of success of the SJA subprojects would be helpful to confirming or rejecting these results. In addition, a study of the SJIII productive subprojects would be illuminating. It would also be interesting to compare the incomes of those targeted under SJII, SJA, and SJIII, as well as the productive subproject outcomes across these three projects.

APPENDICES

APPENDIX A

THE ONGOING PARTICIPATION MODEL

I separate the initial decision to participate in SJA projects from the ongoing decision to participate in SJA. The initial participation decision is a collective decision by the participants to apply for and carry out the project. Participants can withdraw from the project at anytime, although they cannot rejoin the project. As such, participants make individual ongoing decisions to continue participating.

I model the individual's continuation or non-continuation in the project as a decision rule, which is based on an individual weighing of the expected costs against the expected benefits. I take the initial participation decision as given. As would be expected, participants continue participating when they expect the benefits to outweigh the costs. As such I theorize ongoing group participation as a collection of individual decisions. This assumption is similar to many formal models of collective action (Oliver, 1993).¹ While this does resemble a utility function, I want to emphasize that I am *not* attempting to measure the total utility of the project to the individual. Rather, I am attempting to model a possible way the participants decide whether or not to participate in a livelihood activity.

The context for the SJA projects is unique in that organized settlements came together through collective action both in their original process of becoming a settlement and secondly under the umbrella of the MST in order to gain access to the SJII

¹There is an extensive literature criticizing cost benefit analysis (Sen, 2000). The cost benefits here are theoretical and should be interpreted as the way an individual makes a livelihood - business decision. Not as an explicitly quantified summing up of costs and benefits across individuals, as cost benefit analysis is typically designed particularly in the case of public goods decisions.

funds. In the standard CDD project design, potential participants are expected to come together based on the project they would like to undertake. This assumes they would face similar costs (including opportunity costs) and benefits. Thus, in these projects the community is flexibly defined — it is those who wish to take on a project. The settlement as a whole was offered a subproject and individual households on the settlement made their own decision of whether to participate. As such, individuals within the settlement communities may have had a larger range of opportunity costs as they did not self select into a subproject but rather self-selected into a group and then the group decided on the subproject. The projects are voluntary and, as such, not all members of the settlement have to participate, and any member can drop out at any time. The decision to participate in the project is an individual decision but is also influenced by the group.

I assume that the settlers' value group well-being, collective work, and solidarity based on their extensive prosocial behavior. While the settlers prosocial behavior would be assumed to be above average in general, it may vary in intensity. For example, settlers entered into the settlement through different avenues. I follow (Sen, 1977) and term this prosocial behavior, commitment. Sen defines commitments as something a person believes in or values, upon which they will act (1977). Sen's commitments are most easily identified when a person, not cognitively impaired, takes a decision which makes their own well-being worse off but reflects their commitment(s). It is possible that commitments will align with what makes one better off, yet they are difficult to identify in this case. Bowles subsumes commitments under his formulation of *endogenous preferences* (Bowles, 1998). Here commitments (or more generally - values) influence one's preferences.

Since I am not trying to measure utility I do not try to identify or rank *all* the participants preferences. As such, I find Sen's conception of commitment adequate to the task. My decision rule holds two explicit preferences: 1) the participants would

like the project to make them better off, either through greater income or greater production and 2) they have a commitment to the collective. Since participants have a commitment to the group as observed in their participation in the settlement, I assume if an individual is neutral (or in some cases even somewhat skeptical) concerning their costs versus benefits, their commitment to the collective would cause the individual to participate.

There are reasons to expect the ongoing cost benefit postulation of their participation decision is valid. First, because the group has little information about the project initially, it may be unclear if the project will be beneficial to them in the long run. Second, as mentioned earlier, participation in the project is voluntary. When it becomes clearer what the actual costs and benefits of the project are the participants may drop out of the project. Lastly, the participants, through their initial participation in the settlement, general assemblies, and collective work indicate some commitment to a group project.

I model the benefits as the total expected project profits divided by the number of people participating π^e/n_p .²

The production function for the project follows:

$$q = an_p^\alpha \tag{A.1}$$

where a is a technical coefficient, $0 < \alpha < 1$ is an exponent showing diminishing marginal returns to labor. Obviously, this is a short run production function. Since the project grant provided the capital, and the settlers are both monetarily and credit constrained, they will be unable to expand via capital until they have sufficient output.

²Most, but not all, productive CDD projects are targeting production for a market. In two of my cases capim, and the tractor, these are inputs for marketable production rather than the marketable production itself. These are reviewed further in the following section.

I model costs as $\tau/n_p + e_i$. The monetary cost of the project, τ , is divided among all participating members, n_p , plus the effort of the individual, e_i , where $e_i > 0$. Monetary inputs include the monetary costs of the project that have not been covered by the project grant, such as electricity. Effort is the individual's participation in the project's labor requirements, in its organization, and in meetings. Labor in the projects can be divided between the organizing aspects and the actual physical labor on the project. The organizing aspects, such as serving as a president of the group and/or problem solving are not divided equally. Physical labor tasks are, in general, divided equally, but people can put in different amounts of effort in order to accomplish these tasks. Thus, I take effort as specific to the individual rather than equally divided among the group members. Effort can vary depending on an individual's distance from the project, participation in the organizational aspects of the project, physical well-being, and the intensity of their labor contribution. I exemplify this in Case 2, by looking at distance from the project as an indicator of effort. As a shorthand I assume e_i , to be equal to the number of hours over which the project tasks are engaged in by the hourly wage of rural agricultural workers (where the daily wage is divided by eight hours).

I also assume that participants have a commitment to the collective project that lead them to participate m_i , $m_i \geq 0$. In Case 3, I allow the magnitude of m_i to vary. I consider commitment to the project to vary by individual.

In sum, individuals make the decision to continue participating by weighing the project benefits: expected profits (which includes the monetary costs of the project) divided by the number participating plus their individual commitments to the collective project, with their individual project cost: effort.³ This assumes that all costs of the initial participation decision (such as effort and occasionally monetary inputs) are

³Effort is not included directly in τ because it exists with respect to an individual fallback position and is determined individually.

considered sunk costs. As such, they are excluded from the decision to continue participating in the project.

$$\mu_i = [(\pi_e/n_p) + m_i] - e_i \quad (\text{A.2})$$

The expected profit function for the collective project is given below by substituting in the production function.

$$\pi^e = \theta((an_p^\alpha)p - \tau) + (1 - \theta)(-\tau) \quad (\text{A.3})$$

Profits are given by the quantity times the price less any monetary costs the project might have incurred. Since the projects are set-up with grant funds, and participants are not remunerated in cash, the only monetary costs are those that come up during the production process. Additionally, since it is not known if the projects will succeed or not, settlers' gauge the expected value of the project on the basis of a hypothesized probability of success denoted by θ . To simplify θ is assumed to be equal to n_p/n , where n is the total number of people who originally decided to participate in the project. The logic behind this assumption is as follows. First, these projects are designed for a certain number of participants; as such they may function better with a greater percentage of the possible participants. Second, threshold models of collective behavior have been proposed in which the participation of some people depends on the participation of others (as well as the connections between participants), and small declines in the number of participants can cause a large number of people to drop out (Granovetter, 1978). I hypothesize that under the conditions of uncertainty and little information, participants base their own expectations of project success on the participation others — which acts as an index of confidence in project outcomes.

I substitute the equation for profits into the decision rule, and simplify to find the reduced form of the equation.

$$\mu_i = \left[\frac{\theta((an_p^\alpha)p - \tau) + (1 - \theta)(-\tau)}{n_p} + m_i \right] - e_i \quad (\text{A.4})$$

The reduced form is below.

$$\mu_i = \frac{apn_p^\alpha}{n} - \frac{\tau}{n_p} + m_i - e_i \quad (\text{A.5})$$

The reduced form allows us to graph the equation. In this model there are three different ways in which individual participants can vary with respect to their decision rule; they can have different fallback positions/opportunity costs, they can put in different intensities of effort, or their level of commitment can vary. In the following three cases I will show how these might affect the ongoing participation in the project

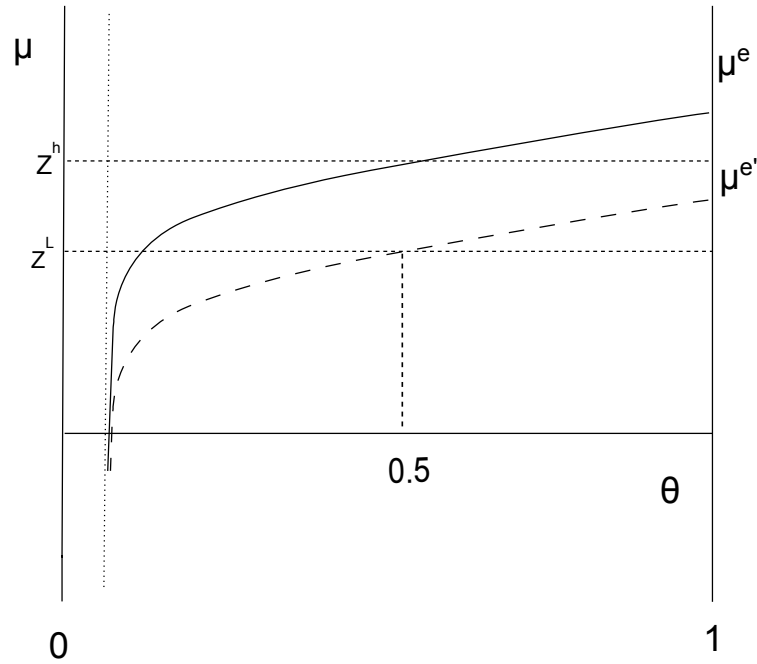
Case 1: Differing Fallback Positions

Participants may have different fallback positions. For example, many individuals work off the settlement. They work a variety of jobs, with both differing pay rates as well as quantity of work. Thus, instead of just giving up work on their own crops, they may be giving up paid daily work off settlement. Another example is that they may plant more or less acres of crops. Additionally they may have different types of crops. In general, irrigated vegetable crops will bring a greater return than solely planting beans and corn.

In figure A.1 the expected utility at the start of the project is μ^e . The proportion of people participating is θ and the fallback position is Z . I break the participants into two groups. Those with a high fallback position, Z^h , and those with a low fallback position, Z^L . If (expected) costs increase or (expected) benefits decrease μ^e will shift down to $\mu^{e'}$. At this point we can see that those with the higher fallback position will now obtain greater personal benefit from putting their time into their fallback position rather than the project, so they may decide to leave the project.

If we expect that 30% of the participants have a high fallback position and drop out, we see that the decision rule for those with the lower fallback position is positive and most likely they will continue in the project. Thus, all else the same, there could be a stable equilibrium with 70% participation. On the other hand if we expect 70% of the participants to have a high fallback position and drop out, we see that the cost benefit decision for those with the lower fallback position is now negative, given the 70% attrition rate. As such, all participants would drop out. The model exemplifies that depending on the parameters, even a small amount of attrition from the project could potentially cause project failure.

Figure A.1. Case 1 - Differing Fallback Positions



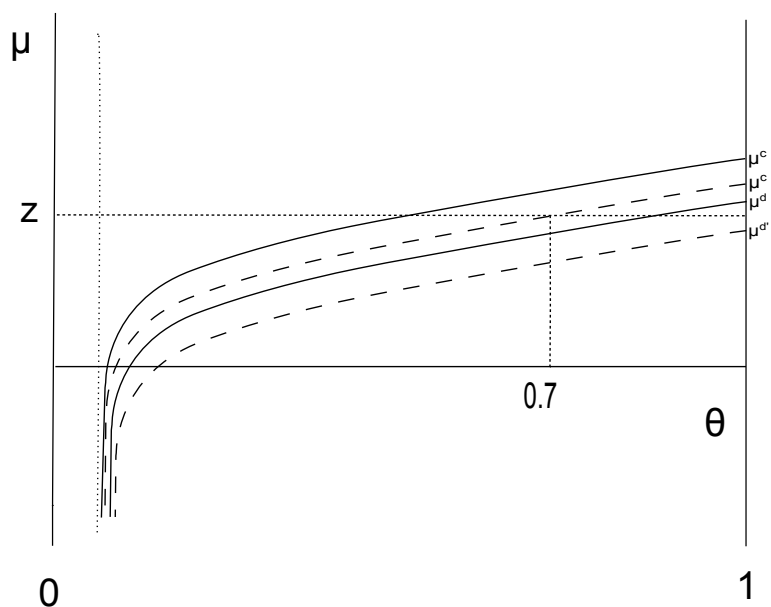
Case 2: Differing Effort

Here I evaluate what the possible consequences of participants contributing differing amounts of effort. For example, distance to the project could vary on a settlement in which homes are scattered over the settlement. In this case, effort could depend on both distance to the project and available type of transport. Main modes of transport

are walking, bicycles, and motorcycles. In the case of settlement 5, some participants had to walk 2-3 miles to get to the project.

In figure A.2 I split the participants into two groups, those that live closer to the project, μ^c , and those that live farther from the project, μ^d . If costs increase or benefits decrease both decision rules shift down. The fallback position is Z, and the proportion of people participating in the project is θ . Similar to the previous case, depending on the number of participants belonging to one group or another there will be different outcomes. Given the shift, those who live farther away from the project will stop participating. If the project is composed of seventy percent or more participants who live closer than the project will continue with just those who live close. If there participants who live close to the project make up less than seventy percent of the project participants all participants will find it non-beneficial to participate.

Figure A.2. Case 2 - Differing Effort



Case 3: Differing Commitments

Participants may have a greater or lesser commitment to the collective project. One might expect that those with a greater commitment to the collective project to bear a more unfavorable cost to benefit ratio than what an analysis excluding commitments would predict. I base this assumption on two factors. First, all the participants have previously joined a group project - the settlement. Second, most of the participants have participated in collective action or collective work outside of the project. Thus, in all cases I would expect a positive commitment to the group project. Yet, it may be that some members are willing to make more sacrifices than others for the group project. An example of why this might be the case is the way in which people came to be members of the settlements. Once the organizers were given the legal go ahead to establish a settlement they were required to include as members those who had historically been living on the land as *moradores*. It is probable that the *moradores* wished to continue living on the land rather than move, but felt less commitment to the idea of the settlement itself.⁴ On the other hand, those that organized the settlement, those that came from farther away, and/or made greater changes in their lives to be a part of the settlement may have a greater commitment to the collective.

Commitments can take the following three forms in an individual's decision to participate in a collective project. One, the project is obviously beneficial to the participant and the group. The individual would participate regardless of their commitment to the group. Two, the project is so costly to the individual they will not participate even after taking their group commitment into account. Three, the person is somewhere in between these, perhaps their expectations are neutral or even doubtful regarding the project, yet their commitment to the group causes them to

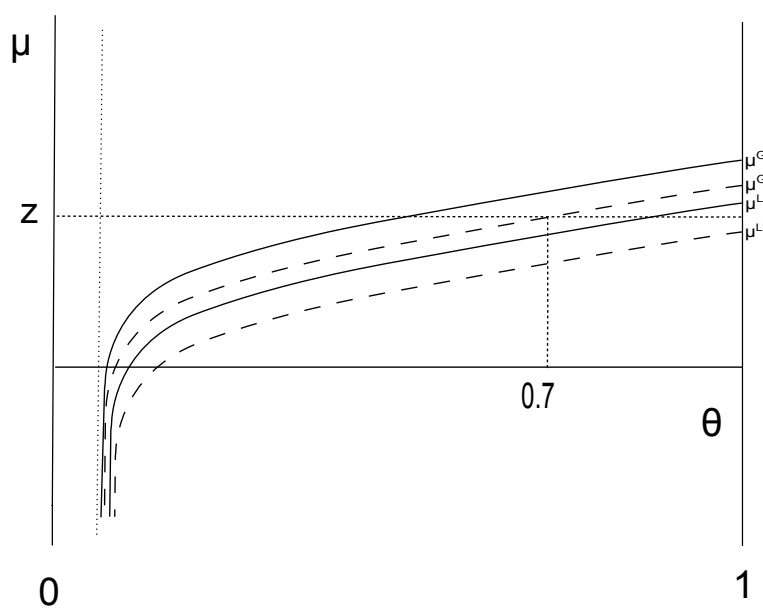
⁴Of course the *moradores* received many benefits by becoming part of the settlement, such as access to credit and grants to build homes, as well as the ability to run livestock. Running livestock as a *morador* on the landowners land was forbidden.

participate. As the project continues new information, project problems, or external shocks can cause such a participant to leave the project.

In this case I allow some variation in m_i and divided the participants into two groups; those with a greater commitment to the collective and those with a lesser commitment to the collective.

The analysis and graph is very similar to Case 2, except that I divide the two decision rules into those with a greater commitment, and those with a lesser commitment. Again if costs (benefits) were to increase (decrease) then the decision rules would shift down (up). Apart from the definition of the two decision rules the results would graph essentially the same as Case 2. Thus we can see how we could get a movement to a stable equilibria with partial group participation or how the non-participation of a part of the group could cause a total exodus from the project.

Figure A.3. Case 3 - Differing Commitment



APPENDIX B

SURVEY

Numero de Entrevista:

176

9.	Você se considera parte do MST?	a. Militante b. Apoiador c. Simpatizante d. Não		
10.	Voce paga alguma coisa para o MST?	Sim	Não	
	a. Se sim, quanto e com que frequencia?	Quanto _____ Que Frequencia _____		
11.	Você é um miembro do FETRAECE?	Sim	Não	
12.	Você paga alguma coisa para o FETRAECE?	Sim	Não	
	a. Se sim, quanto e com que frequencia?	Quanto _____ Que Frequencia _____		
13.	(só Credito Fundiario) Quanto você tem que pagar por ano no emprestimo da terra?			NA
14.	(só Credito Fundiario) Voce esta com os pagamentos em dia?	Sim	Não	NA
15.	(so Credito Fundiario) A sua condição de vida mudou desde que voce començou a pagar o emprestimo?	Sim	Nao	NA
	a. Se Sim, como?			NA

Production				
16.	Quanta terra você tem?			
17.	Quanta terra você planta?			
18.	Quanta terra você usa para os animais?			
19.	A area da pastagem é suficiente para as animais?		Sim	Não
20.	Qual e a qualidade de sua terra?		a. Boa b. Media c. Ruim	
	a.	Se media o ruim, quais problemas tem sua terra?	a. Acidez b. Solo fraco c. Carência de nutrientes d. Arenoso e. Rochoso f. Solo raso (shallow soil) g. Topografia acidentada (rugged) h. Sem água i. Água de baixa qualidades j. Outra _____	
21.	Quantos horas por dia você tralha em sua produção individual? Quantos dias por semana você trabalha em sua produção individual?		# de horas por dia _____ # de dias por semana _____	
22.	Quem trabalha com você?		h. Só Família i. Outros membros do assentamento j. Trabalhadores contratados	# _____ # _____ # _____ # _____
23.	Praticas na sua terra individual			
			Sim	Não
	Trator			
	Tração animal			
	Queimada			
	Rotação de culturas			
	Descanso do solo para recuperação			
	Agrotóxico			
	Controle Biológico para praga e doenças			
	Adubação química			
	Adubação natural/orgânico			
	Plantio direto (No till), voce mexa/ara a terra todos veces			
	Rotação de pastagem			
	Suplemento mineral			
	Calcário			
	Inseminação artificial das vacas			
	Sementes Transgênicas			

(polyculturas) 2 or more crops in the same field					
Irrigação					
Drip irrigation/ irrigacao por gotejamento					
Rainwater harvesting/ Coleta agua da chuva					
Reutiliza agua da casa/ chuveiro o da pia/tornera					
24. Bens da Produção Agrícola					
Bens	S/N	Individual/Coletivo / Prestado/ Alugado	Bens	S/N	Individual/Coletivo/ Prestado/ Alugado
Trator			Carroça (puxado por animal)		
Microtrator			Carreta (puxada por trator atrais do caminhão)		
Grade			Bomba de irrigação		
Roçadeira (mower)			Canos, mangueiras, asperses e filtros de irrigacao		
Beneficiador (corta para mandioca)			Gerador eletrico		
Forrageira (para silagem)			Gerador diesel		
Pulverizador (passar veneno) () tração animal () tratorizado			Curral		
Plantadeira (seeder) () tração animal () tratorizado			Galinheiro		
Capinadeira (mower, clear land) () tração animal () tratorizado			Chiqueiro		
Arado () tração animal () tratorizado					
25. Acesso ao Credito					
	Acesso Credito		Voce esta com os pagamentos em dia?		
	Sim	Não	Sim	Não	
Banco Particular					
Banco Estatal					
Microcredito					
Cooperativa					
Emprestimo pessoal					
Pronaf					
26. Fatores para o não conseguir prestimo			NA		
			Sim	Não	
Medo de ter dividas					
Nao precisou					
Falta de garantia pessoal					
Dividas anteriores					
Nao sabe como obter					
Sem resposta					
27.	Quais dificuldades enfrentam por nao possuir o titulo de posse da area?		a. Nao enfrento dificuldades b. Nao consigo empréstimo c. Sem segurança para investir d. Sem segurança para planos futuros e. Area sujeita a conflitos f. Outros g. NA		
28.	Voce participa da produção coletiva?		Sim	Não	
29.	Voce recebe renda, comida, ou bens da produção coletiva?		Sim	Não	
a.	Se sim, quanto recebeu no ano pasado?				
30.	Quanto horas por semana voce trabalha na produção coletiva?				
31.	Voce trabalha mas que os outros no trablho coletivo?		Sim	Não	Não Sei

32.	Voce acha que trabalho coletivo esta divida justamente?	Sim	Não	Não Sei
	a. Se não, Porque não?			
33.	Que faz se alguem não esta fazendo o trabalho exigido?			
34.	Os moradores sao rigorosos com os que faltam aos trabalhos na area coletiva hoje?	a. A maioria e rigorosa e cobra as faltas b. Poucos sao rigorosos e cobram as faltas c. Ninguem cobra as faltas d. Nao ha trabaho coletivo		
35.	Você tem um quintal?	Sim	Não	
36.	Quão importante é produzir sua propia alimento de uma escala 1 to 5, onde 1 e menos importante e 5 e muito importante?	1	2	3 4 5

37.	<i>Produção</i>					
Cultivo	(a) Coletivo (b) Individual	Area plantada (ha)		Quantidade produzida	Teve Assistencia Tecnica	
					Sim	Não
Destino da producao	Vendida para atravessador	Vendida ao consumidor	Vendida para industria	Autoconsumo	Alimentação de anamais	Outra
Quantidade (und)						
Valor medio (R\$/und)						
Cultivo	(a) Coletivo (b) Individual	Area plantada (ha)		Quantidade produzida	Teve Assistencia Tecnica	
					Sim	Não
Destino da producao	Vendida para atravessador	Vendida ao consumidor	Vendida para industria	Autoconsumo	Alimentação de anamais	Outra
Quantidade (und)						
Valor medio (R\$/und)						
Cultivo	(a) Coletivo (b) Individual	Area plantada (ha)		Quantidade produzida	Teve Assistencia Tecnica	
					Sim	Não
Destino da producao	Vendida para atravessador	Vendida ao consumidor	Vendida para industria	Autoconsumo	Alimentação de anamais	Outra
Quantidade (und)						
Valor medio (R\$/und)						
Cultivo	(a) Coletivo (b) Individual	Area plantada (ha)		Quantidade produzida	Teve Assistencia Tecnica	
					Sim	Não
Destino da producao	Vendida para atravessador	Vendida ao consumidor	Vendida para industria	Autoconsumo	Alimentação de anamais	Outra
Quantidade (und)						
Valor medio (R\$/und)						
Cultivo	(a) Coletivo (b) Individual	Area plantada (ha)		Quantidade produzida	Teve Assistencia Tecnica	
					Sim	Não
Destino da producao	Vendida para atravessador	Vendida ao consumidor	Vendida para industria	Autoconsumo	Alimentação de anamais	Outra
Quantidade (und)						
Valor medio (R\$/und)						
Cultivo	(a) Coletivo (b) Individual	Area plantada (ha)		Quantidade produzida	Teve Assistencia Tecnica	
					Sim	Não
Destino da producao	Vendida para atravessador	Vendida ao consumidor	Vendida para industria	Autoconsumo	Alimentação de anamais	Outra
Quantidade (und)						
Valor medio (R\$/und)						

Animal	(a) Coletivo (b) Individual	Quantos		Teve Assistencia Tecnica	
				Sim	Não
Destino da producao	Vendida para açouge	Vendida o consumidor	Vendida para industria	Autoconsumo	Outra
Quantidade (und)					
Valor medio (R\$/und)					
Animal	(a) Coletivo (b) Individual	Quantos		Teve Assistencia Tecnica	
				Sim	Não
Destino da producao	Vendida para açouge	Vendida o consumidor	Vendida para industria	Autoconsumo	Outra
Quantidade (und)					
Valor medio (R\$/und)					
Animal	(a) Coletivo (b) Individual	Quantos		Teve Assistencia Tecnica	
				Sim	Não
Destino da producao	Vendida para açouge	Vendida o consumidor	Vendida para industria	Autoconsumo	Outra
Quantidade (und)					
Valor medio (R\$/und)					
Animal	(a) Coletivo (b) Individual	Quantos		Teve Assistencia Tecnica	
				Sim	Não
Destino da producao	Vendida para açouge	Vendida o consumidor	Vendida para industria	Autoconsumo	Outra
Quantidade (und)					
Valor medio (R\$/und)					
Animal	(a) Coletivo (b) Individual	Quantos		Teve Assistencia Tecnica	
				Sim	Não
Destino da producao	Vendida para açouge	Vendida o consumidor	Vendida para industria	Autoconsumo	Outra
Quantidade (und)					
Valor medio (R\$/und)					
Animal	(a) Coletivo (b) Individual	Quantos		Teve Assistencia Tecnica	
				Sim	Não
Destino da producao	Vendida para açouge	Vendida o consumidor	Vendida para industria	Autoconsumo	Outra
Quantidade (und)					
Valor medio (R\$/und)					
Animal	(a) Coletivo (b) Individual	Quantos		Teve Assistencia Tecnica	
				Sim	Não
Destino da producao	Vendida para açouge	Vendida o consumidor	Vendida para industria	Autoconsumo	Outra
Quantidade (und)					
Valor medio (R\$/und)					
Animal	(a) Coletivo (b) Individual	Quantos		Teve Assistencia Tecnica	
				Sim	Não
Destino da producao	Vendida para açouge	Vendida o consumidor	Vendida para industria	Autoconsumo	Outra
Quantidade (und)					
Valor medio (R\$/und)					
Animal	(a) Coletivo (b) Individual	Quantos		Teve Assistencia Tecnica	
				Sim	Não
Destino da producao	Vendida para açouge	Vendida o consumidor	Vendida para industria	Autoconsumo	Outra
Quantidade (und)					
Valor medio (R\$/und)					

38.	Projeto			
Projeto:		Sim	Não	Comentarios
Esse é o projeto que você queria?				
Ele supre suas nesecidades?				
Porque ou porque não?				
Você ajudou a escolher esse projeto?				
Você trabalhou no projeto				
O que faz?				
Você ja participio de outra forma no projeto?				
O projeto amentou a sua renda familiar?				
O projeto amentou sua produção de alimentos?				
O projeto amentou seu bem-estar?				
Se sim, em qual maneira?				
O projeto é/foi bom para a comunidade?				
Projeto:		Sim	Não	Comentarios
Esse é o projeto que você queria?				
Ele supre suas nesecidades?				
Porque ou porque não?				
Você ajudou a escolher esse projeto?				
Você trabalhou no projeto				
O que faz?				
Você ja participio de outra forma no projeto?				
O projeto amentou a sua renda familiar?				
O projeto amentou sua produção de alimentos?				
O projeto amentou seu bem-estar?				
Se sim, em qual maneira?				
O projeto é/foi bom para a comunidade?				
Projeto:		Sim	Não	Comentarios
Esse é o projeto que você queria?				
Ele supre suas nesecidades?				
Porque ou porque não?				
Você ajudou a escolher esse projeto?				
Você trabalhou no projeto				
O que faz?				
Você ja participio de outra forma no projeto?				
O projeto amentou a sua renda familiar?				
O projeto amentou sua produção de alimentos?				
O projeto amentou seu bem-estar?				
Se sim, em qual maneira?				
O projeto é/foi bom para a comunidade?				
Projeto:		Sim	Não	Comentarios
Esse é o projeto que você queria?				
Ele supre suas nesecidades?				
Porque ou porque não?				
Você ajudou a escolher esse projeto?				
Você trabalhou no projeto				
O que faz?				
Você ja participio de outra forma no projeto?				
O projeto amentou a sua renda familiar?				
O projeto amentou sua produção de alimentos?				
O projeto amentou seu bem-estar?				
Se sim, em qual maneira?				
O projeto é/foi bom para a comunidade?				

Technical			
39.	Tem acesso a assistencia tecnico no assentamento?	Sim	Não
40.	Usou assistencia tecnica no assentamento?	Sim	Não
	a. Se não, porque não?	a. Não queria b. Não precisava. d. Não tinha dinheiro para contratar e. Não existia	
	b. Se sim, quais são os tipos de assistencia tecnica que voce recebeu	a. Elaboracao de projecto b. Gerenciamento da unidade produtiva (comercializacao, compra de insumos) c. Orientação tecnica para produzir individualmente d. Orientação tecnica para produzir coletivamente e. Outro	
	a. Se sim, quem proveu a assistencia tecnica?		
	b. Se sim, com que frequencia voce recebe assistencia tecnica?	a. Uma Vez b. Periodicamente: com qual frequencia _____ c. Infrequentemente d. Com frequencia mas sem dias marcados	
	c. Se sim, como se classifica?	a. Boa b. Media c. Ruim	
41.	Recebeu assistencia tecnica ou treinamento sobre o uso de adubo, agrototoxicos, o controle biological de doenças?	Sim	Não
	a. O treinamento foi em favor de productos quimicos ou productos organicos?	Quimico	Organico
	b. Qual organização fez ou treinamento?		

Governo			
42.	Qual é o cargo que você ocupa na associação?	a. Nenhum b. Presidente c. Vice-Presidente d. Tesoureiro e. Vice-Tesoureiro f. Secretário g. Vice-Secretário h. Conselheiro i. Outro _____	
43.	Você já teve no pasado algum posição de liderança?	Sim	Não
	a. Se Sim, quais foram?		
44.	Como são tomada as decisões na associação?	a. Com a participação da maioria b. Sem a participação da maioria c. Não sabe d. Outro	
45.	Quantos reuniões teve nas ultimos 3 meses?	# de Reuniões _____ Não lembrou _____	
46.	Dessas, quantos reuniões você foi?		
	a. Em quantas dessas reuniões você falou?		
47.	Outros membros de sua familia atenderam as reuniões também?	Sim	Não
	a. Se Sim, Qual?		
	b. Quantos?		
48.	No seu assentamento há muitos desentendimentos entre os moradores?	Sim	Não
49.	Quando há desentendimentos as lideranças da comunidade ajudam a resolve-los?	a. Ajudam resolver a maioria deles b. Ajudam resolver alguns deles c. Não ajudsam a resolve-los	
50.	Em geral como você classifica o trabalho dos líderes no assentamento?	a. Bom b. Medio c. Ruim	
51.	Com que frequencia os moradores de sua comunidade	a. Muita	

	ajudam as famílias que passam por situações de necessidade (perda de safra ou doença grave na família)?	b. Pouca c. Nunca		
52.	Com que frequência voce se junta aos outros moradores para resolver problemas da comunidade (manter a estrada de acesso, concertar a bomba de agua)?	a. Muita b. Pouca c. Nunca		
53.	Quanto confiança você tem nos outros membros da comunidade?	d. Muita e. Pouca f. Nenhuma		
54.	Você trabalha mas dos outros nos comites os outros posições de liderança?	Sim	Não	Não Sei
55.	Você acha que o trabalho de liderança é dividido de forma justa?	Sim	Não	Não Sei
	a. Comentários			

Renda						
56. Renda do trabalho for a do assentamento no ultimo mes						
	Relacionamento com o chefe da família	Tipo de Trabalho renumerado	Dias Trabalhados Valor Total por mes	Carteira de Trabalho assinado S/N	Comentarios	
1			Dias Trabalhados Por Mes			
			Valor R\$			
2			Dias Trabalhados Por Mes			
			Valor R\$			
3			Dias Trabalhados Por Mes			
			Valor R\$			
4			Dias Trabalhados Por Mes			
			Valor R\$			
5			Dias Trabalhados Por Mes			
			Valor R\$			
6			Dias Trabalhados Por Mes			
			Valor R\$			
57.	Você paga o Carné INSS?			Sim	Não	NA
58.	Além do trabalho, sua família teve outras fontes de renda monetaria sem ser com produção agricola nos ultimos 12 meses					
Fonte			N	R\$/Mes	No. de meses	
Aposentadoria						
Pensões						
Bolsa Família						
BPC (Benefício de Prestação Continuada)						
Bolsa Cidadã						
Prog de erradicação de trabalho infantil (PETI)						
Cesta Basica						
Seguro desemprego						
Garantia a safra (Seguro Safra)						
Bolsa Estiagem						
Doações						

60. Bens da Casa			
Bens	Quantidade	Bens	Quantidade
Telefone Fixo		Antenna parabólica (satellite)	

Celular		Televisão	
Fogão		Video Cassete/DVD	
Geladeira		Radio/Aparelho de Son	
Freezer/Congelador		Bicicleta	
Liquidificador		Moto	
Ventilador		Carro	
Máquina de lavar		Caminhão ou caminhonete	
Máquina costura		Outro	

Education						
61.	Agora seus filhos vão a escola?	Sim	Não	NA		
62.	Tem uma escola no assentamento	Sim	Não	NA		
	a. Se a escolar não esta no assentamento, qual é a distancia de aqui até a escola?			NA		
63.	Quantas series tem na escola?			NA		
64.	Agora, no assentamento, a educação para seus filhos é melhor ou pior?	a. Melhor b. O Mesmo c. Pior		NA		
65.	Qual é a importancia da educação para crianças de um escala de 1 a 5, onde 1 e menos importante e 5 e muito importante?	1	2	3	4	5
66.	Você participa dos programas de educação para adultos?	Sim	Não			NA
67.	Você tem planos de participar dos programas de educação para adultos?	Sim	Não			NA
68.	Qual é a importancia da educação para adultos de um escala de 1 a 5, onde 1 e menos importante e 5 e muito importante?	1	2	3	4	5

<i>Saude</i>				
69.	Agora você tem acesso a um posto de saude no assentamento?	Sim	Não	
	a. Sim não, Qual é a distancia você tem que viajar para chegar ao posto de saude?			
70.	Agora, no assentamento, seu acesso e qualidade ao atendimento de saude é ...	a. Melhor b. O mesmo c. Pior		

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