Complementing and extending the global landscaping and comparison of national extension systems in Part 1 of this book, Part 2 provides country cases where in-depth assessments of national extension system performance were undertaken. In the best-fit framework (see Figure 1.2) performance measures include content, targeting, feedback, timeliness, relevance, effectiveness, efficiency, and sustainability (Box I). However, these terminologies were vaguely defined, and no indicators were included. This makes operationalization of the framework quite challenging for researchers, and as a result these performance indicators were inconsistently applied in various assessments. In Part 2, five country cases provide an in-depth examination of the framing conditions of the countries; the governance, structure, and management of the national extension systems (and subnational systems in some cases), including human and financial resources; and the delivery mechanisms and approaches (Boxes A–H). The country cases extend the assessment to include performance and impact indicators.

First, country cases explored in these chapters extend the assessment of performance at the systems level, including content, targeting, feedback, timeliness, relevance, effectiveness, efficiency, and sustainability (Box I), with some country cases including more comprehensive measures of performance than others. Second, the country cases extend the assessment of performance to the level of target households and individuals, including access to extension services and some indicators of the quality and relevance of extension services (all country cases) (Box J). All country cases, except Brazil, include indicators of changes in behavior and practices manifested in technology-adoption patterns (Box J). Third, some country cases extend the assessments to changes in yields or productivity and food security (Malawi, the Democratic Republic of the Congo, and Uganda) and agricultural transformation and economic
development (in the case of Ethiopia) (Box K). Some country cases cover the whole country with available national representative datasets (Malawi, Uganda, and Ethiopia); while others cover selected zones or regions (Brazil and the Democratic Republic of the Congo), and therefore care and caution are made in the analysis and interpretation of the results.

Due to the diversity of research teams and available data, different performance and impact indicators were used in the different country cases. The concluding chapter (Chapter 9) summarizes these indicators with some limitations and suggestions for future assessments.
4.1 Introduction

Over the past two decades, many developing countries reformed their rural extension services in response to emerging issues and challenges (Benson and Jafry 2013; Chowdury, Odame, and Leeuwis 2014; Qamar 2005; Rivera and Alex 2005). Some of these emerging issues and challenges include “globalization, market liberalization, privatization, pluralism, decentralization and devolution, client participation in decision-making, natural and man-made disasters, rural poverty, food insecurity, HIV/AIDS epidemic, and emphasis on integrated, multidisciplinary, holistic and sustainable development” (Qamar 2005: viii). In response to these issues and challenges, the modernization of rural extension services included broadening extension’s technical mandate, enacting a national extension policy, professionalization of extension services, use of information and communications technologies, and participatory and agroecological approaches (Qamar 2005).

Reviving Latin American extension systems has been back on the policy agenda the past decade or so (Klerkx, Landini, and Santoyo-Cortés 2016), indicating a reversal of decades of neglect following the neoliberal wave of fiscal and economic crises that led to the removal of public funding for extension services in many countries in the region. This renewed attention in the region has led to several reforms of their extension systems. The case of Brazil is typical. Yet despite much investment in Brazil’s National Policy for Technical Assistance and Rural Extension (PNATER), there is still a lack of research assessing the impacts of the extension policy reforms from the perspective of smallholder farmers and extensionists. This chapter presents results of a study that aims to examine the perceived impacts of the Brazilian federal government’s extension services from the perspective of the smallholder farmers and the extensionists in reaching the policy goals and objectives.
An interdisciplinary approach drawing upon institutional economics, neoinstitutional theory, and public policy-making was employed for this study. Using an indicator system based on essential elements of the extension policy guiding the services, farmers, extension technicians, and extension managers were interviewed to obtain their perspectives on the functioning and the effectiveness of extension services. Data were collected in five territories in three states in Brazil during 2014 and 2015. The states and territories were purposively selected to represent the reality of the family farming system in Brazil.

The findings show that the extension services have been relatively successful in terms of reinforcing the role of government policies regarding food sovereignty and food security issues, spreading agroecological principles, making use of innovative pedagogical approaches by extensionists, encouraging social and community mobilization in individual states, and improving farmer income. However, the extension services were less effective in terms of addressing issues of gender, age, and ethnic inequality, which were rated low in all states by both the smallholder farmers and the extensionists. Furthermore, the effectiveness of the extension services to deal with environmental issues and access to natural resources and the frequency of services were also rated low by the respondents.

4.2 Data Sources and Methodology

Five territories were selected in three Brazilian states to evaluate the perceived impacts of the agricultural extension policy. The study areas were part of the Brazilian Territory Citizenship Program created in 2008 by the federal government. This program identified the poorest and least developed municipalities in different administrative regions as part of establishing such territories as specific targets of interventions for human development. The final choice of territories was made in consultation with the representatives from the Ministry of Agrarian Development (MDA). The study territories were selected due to high concentration of family farmers, rural settlements of black farmer communities (quilombos), and indigenous populations. The following territories were included in the study: Alto Jequitinhonha (Minas Gerais state), Cantuquiriguaçu (Paraná state), Pontal do Paranapanema (São Paulo state), São Paulo’s Southwestern (São Paulo state), and Vale do Ribeira (Paraná state) (Figure 4.1).

Data-collection instruments included questionnaires focusing on objective questions, allowing answers to identify the interviewee’s perception of his
or her reality. Responses were based on a five-point Likert scale—from the least to the greatest—asking respondents to indicate how much they agreed or disagreed, approved or disapproved, or believed to be true or false (Albaum 1997; Allen and Seaman 2007). For instance, one question was “Do the extension technicians conduct specific actions related to youth and the elderly?” Respondents could answer “No, never; Rarely; Regularly; Sometimes; Always.” In addition to closed questions, the questionnaires for farmers and extensionists also had some open-ended questions, aiming to add a qualitative perspective to the interview and increasing the explanatory capacity of the phenomena observed in the quantitative information.

Two different data-collection instruments were used; the first questionnaire collected information from family farmers; and a second questionnaire elicited information from field technicians implementing extension services in the territory. The family farmers’ questionnaire contained 56 questions, encompassing different indicators, among which three were specific for black rural and indigenous communities. The questionnaire developed for field technicians consisted of 78 questions. It took about 40 minutes to 50 minutes for each interview. Questionnaires were pilot-tested before starting the data collection. Following the preliminary tests, some questions were altered for various reasons (difficulty in understanding terms, ambiguities, insufficient
options for answers, grammatical errors, and others). After finishing the interviews, all the scores from a given question from all the interviewees within a territory were summed. The resulting score was used to evaluate extension in each territory.

An indicator system was developed to collect and analyze data from farmers and extension agents in each territory. The indicators represent a measure with substantial social significance. This measure, with quantitative and qualitative values, is used to replace or operationalize an abstract social concept, usually with theoretical (for academic research) or programmatic (to formulate, analyze, and evaluate policies) interest (Januzzi 2009). Defining an indicator, or a set of them, is a cognitive, abstract task that aims to identify the essential characteristics of a given reality and express it in quantitative or qualitative values. Therefore, it is a reductionist process, which means no indicator system, even the more sophisticated and complex ones, will be able to express reality as it is. Some elements of this reality will always be lost; but this loss was compensated by the elaboration of an indicator system capable of showing the determinant elements of social, economic, cultural, and political configurations of this reality, contributing with subsidies to desired changes (Jannuzzi 2009; Bellen 2010).

Eleven indicators were selected to represent abstract social constructs reflecting key aspects of PNATER values, principles, and objectives. (Table 4.1). The indicators were also validated at a meeting organized by the Ministry of Agrarian Development. Regular consultations with public managers were held to ensure that the results of this research will have both academic and policy-making relevance. Although all the indicators were relevant to evaluate the extension services, there were different levels of importance defined by the researchers and the MDA staff. The criteria used in this study followed the same logic of importance given by the Municipal Human Development Index, developed by the United Nations Development Program for Brazil (Índice de Desenvolvimento Humano Municipal Brasileiro 2013) for the dimension “Access to Knowledge.” As this research seeks to evaluate a recent policy, different weights (multiplier factors) were given according to the importance of the indicator to achieve PNATER’s most essential principles (higher), ranging from 1 (relevant), 2 (somewhat relevant), or 3 (highly relevant).

The goal for the sample survey was to interview at least 200 smallholder family farmers and 20 agricultural extension technicians in each territory. Farmers were purposively selected to ensure a diversity of representatives of family farmers, including indigenous, black rural communities, and farmers
on agrarian reform settlements. Extension workers were purposively selected to come from the territories and also from both governmental and nongovernmental organizations. In total, 1,000 interviews with farmers and 87 with extensionists were conducted in the 5 territories between August 2014 and January 2015.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Weights</th>
<th>Brief description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extension frequency</td>
<td>3</td>
<td>Expresses the frequency that farmers get services from extension agents</td>
</tr>
<tr>
<td>Social and community organization</td>
<td>3</td>
<td>Assesses the dimension related to the farmers’ organizational aspects (associations, cooperatives, trade unions, informal groups)</td>
</tr>
<tr>
<td>Income</td>
<td>2</td>
<td>Determines the economic impact of extension services in the rural community (monetary and nonmonetary earnings, origins of earned income)</td>
</tr>
<tr>
<td>Life quality</td>
<td>2</td>
<td>Includes material and nonmaterial conditions, such as access to essential material means, physical and psychological well-being, social relationships, housing conditions, recreational access, education, freedom of expression and organization, among others</td>
</tr>
<tr>
<td>Food sovereignty and food security</td>
<td>3</td>
<td>Assesses the access to adequate nutrient-rich food, in sufficient quantity, without compromising access to other basic needs, based on healthy food practices, respecting cultural diversity and being socially, economically, and environmentally sustainable</td>
</tr>
<tr>
<td>Environmental issues</td>
<td>3</td>
<td>Evaluates the actions related to promoting effective changes to ensure life continuity and life quality for a long-term period, to manage and ensure vital and finite resources in a social system</td>
</tr>
<tr>
<td>Gender, age, and ethnicity</td>
<td>2</td>
<td>Assesses if the extension is developing specific actions that consider these dimensions in their scope and if other general activities consider the specificities of these social groups</td>
</tr>
<tr>
<td>Pedagogical conception</td>
<td>3</td>
<td>Evaluates if the extension activities are following the PNATER guideline that suggests the use of participative, humanistic, and constructivist approaches</td>
</tr>
<tr>
<td>Access to natural resources</td>
<td>1</td>
<td>Assesses if extension activities that enhance the access to natural resources (land, water, forestry resources) by the farmers are being developed</td>
</tr>
<tr>
<td>Extension concerning other public policies</td>
<td>2</td>
<td>Evaluates how extension activities contribute to access to other policies.</td>
</tr>
<tr>
<td>Technological and management resources</td>
<td>1</td>
<td>Assesses if extension activities are being developed to enhance the use of management tools and technologies</td>
</tr>
</tbody>
</table>

Source: Compiled by the authors.
Data tabulation and analysis were conducted using Microsoft Office Excel 2007 spreadsheets. The given score for a particular question of all interviewees from the same territory was summed, obtaining a single evaluation for a specific question within a territory. This first step allowed each question to have a single score for each territory. After that, the score from each question was multiplied by the assigned weight for the respondent. The sum of these operations for each question resulted in the indicator score. This score was then divided by the maximum possible score for each category. The result of this operation was converted into a percentage, achieving a measure of evaluation for each indicator. Although several recent studies have addressed the structures of extension systems and their consequences (Compagnone and Simon 2012; Faure, Desjeux, and Gasselin 2012; Klerkx, Landini, and Santoyo-Cortés 2016; Klerkx and Proctor 2013; Knierim et al. 2017; Nettle, Crawford, and Brightling 2018; Prager et al. 2016), there is still a lack of full understanding of rural extension systems from a political economy perspective. Thus this research focuses on analyzing the processes that determine the formats and directions of agricultural extension systems.

In this study we use the framework proposed by Howlett, Ramesh, and Pearl (2009) in which the political process is seen as a series of interrelated and interactive sequential stages. This framework allows the user to understand the development of the political process over time; consequently, unveiling the key variables that influence the implementation and impact of the policy. For instance, the framework facilitates identification of bottlenecks in the political process, allowing the identification of the actors and actions of each stage and the consequences of decisions taken (Howlett, Ramesh, and Pearl 2009; Howlett and Giest 2015). We assess PNATER using the following four steps proposed by this approach: (1) agenda-setting—when a social problem is perceived as relevant and becomes part of the government agenda; (2) policy formulation—when some possibilities for addressing the issue are discussed and selected; (3) decision-making—when formal government actors adopt a particular course of action; and (4) policy implementation—when decisions are put into effect using public structures to change the distribution of goods and services in the society.

Considering that the process of assessing a policy is an attempt to understand its merit, worth, and utility, we use the evaluation criteria proposed by the Organization for Economic Co-Operation and Development (OECD 1991), and recommended by the Global Forum for Rural Advisory Services (Christoplos, Sandison, and Chipeta 2012). Both suggest the following
TABLE 4.2 Description of the evaluation criteria used to discuss the PNATER assessment

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Evaluation questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relevance</td>
<td>• Are extension priorities appropriate from the perspective of the clients? • Are the interventions relevant to national and local agricultural policy goals? • Are intervention plans adapted to changing market and climate conditions?</td>
</tr>
<tr>
<td>Efficiency</td>
<td>• Have the target groups of clients received the planned services at an “appropriate” cost? • Have the capacity of extension service providers to reach intended clients changed, and at what cost? • What are the alternative systems for providing (quality) services or capacity development? • How do the costs of services compare with the alternatives?</td>
</tr>
<tr>
<td>Effectiveness</td>
<td>• Has the intervention improved access to services and inputs? • Has the intervention facilitated market access and marketing methods? • Has the intervention facilitated the formation of sustainable farmer groups?</td>
</tr>
<tr>
<td>Impact</td>
<td>• What has been the result of the intervention in terms of greater food security, better nutrition, or improved profitability for different groups of extension clients? • Has the intervention had unintended negative impacts on the environment, on the workload of women, or increased the risks that smallholders face?</td>
</tr>
<tr>
<td>Sustainability</td>
<td>• Have (or will) extension service providers been able to cover the recurrent costs of the intervention’s approach after external funding is phased out? • What are the long-term impacts on soil fertility, access to water, and maintenance of common property natural resources resulting from the promoted technologies?</td>
</tr>
</tbody>
</table>

Source: Compiled by the authors, adapted from Christoplos, Sandison, and Chipeta (2012).

Note: PNATER = National Policy for Technical Assistance and Rural Extension.

criteria to evaluate agricultural extension policies/programs/projects—relevance, efficiency, effectiveness, impact, and sustainability. Despite their limits, the criteria proposed by the OECD are widely recognized as a useful tool for evaluation in the field of development. They allow users to extract interesting feedback from the lessons learned, enabling their incorporation into the decision-making processes, guiding future improvements by identifying success factors, and explaining failures (Chianca 2008; Terrapon-Pfaff et al. 2014). A brief description of each evaluation criterion is in Table 4.2.
4.3 Governance Structures and Policies

Context
Brazil has gone through a long history of agricultural policies starting in 1831 (Bergamasco, Borsatto, and Thomson 2016; Bergamasco, Thomson, and Borsatto 2017; Thomson, Bergamasco, and Borsatto 2017). The inclusion of family farmers as beneficiaries of such policies is quite recent but gaining space on the political agenda since the 2000s (Diesel and Miná Dias 2016). Until the implementation of the National Policy for Technical Assistance and Rural Extension (PNATER by its acronym in Portuguese) in 2004, the history of Brazilian agricultural extension followed the same trajectory of several other Latin American countries. Brazil, in the late 1940s and early 1950s, in an international context dominated by the Cold War, started the implementation of agricultural extension systems based on the North American model. However, rural extension gained political importance and consequently received substantial investments from the mid-1970s, when Brazil assumed, as part of its national development strategy, the mission of providing rural extension services focused on the objective of modernization of its agriculture (Bergamasco, Borsatto, and Thomson 2016; Bergamasco, Thomson, and Borsatto 2017; Klerkx, Landini, and Santoyo-Cortés 2016; Thomson, Bergamasco, and Borsatto 2017).

In the late 1980s and early 1990s, the advancement of a political agenda with neoliberal bias was promoted throughout Latin America as a solution to the national economic crises (Liverman and Vilas 2006; Portes and Hoffman 2003). This resulted in a drastic reduction in federal funding for agricultural extension policies. As a consequence, the Brazilian agricultural extension system became simultaneously uncoordinated and lacking national finances (Bergamasco, Borsatto, and Thomson 2016; Bergamasco, Thomson, and Borsatto 2017; Brazil, MDA and SAF 2004; Peixoto 2008; Pettan 2010; Thomson, Bergamasco, and Borsatto 2017). Hence, there was progressive scrapping of state-level public organizations; some closed and others merged with other public enterprises such as research institutes. Private organizations were closed down or began to provide services to companies interested in selling agricultural inputs. In the 1990s, in the absence of a national policy for the agricultural sector, Brazil saw a number of local initiatives to fill in the vacuum. For example, initiatives funded by municipalities, nongovernmental organizations, and farmer-based organizations sprang up but without coordination (Bergamasco, Borsatto, and Thomson 2016; Bergamasco, Thomson, and Borsatto 2017; Caporal and Costabeber 2002; Miná Dias 2008).
Absence of small family farms, indigenous people, black rural households, and fishers’ communities from public policies marks Brazilian history in rural policy-making. The roots of such neglect go back to the country’s colonization, which followed a development model that pursued large-scale production of commodities for exportation. National governments have followed such a model over the past five centuries as one of the most critical strategies for Brazil’s economic growth. In addition, recent policies have focused on agribusiness-related activities that represent the significant part of Brazilian exports and contribute to the gross domestic product. However, as a direct consequence, such policies have marginalized smallholder farmers who lack access to capital and land from productive value chains. Especially since the 1960s, this process has become even more profound as the access to machinery and other technologies were highly promoted and subsided in favor of large-scale producers.

Besides, as there was never an effective land redistribution policy in the country, land concentration has been increasing. Over the past fifty years, most family farmers have abandoned their original activities and migrated to urban areas as the above-mentioned development model advanced in the countryside. However, the remaining rural families are mostly living under economic insecurity resulting in rural poverty in Brazil as an urgent and modern problem. A study carried on by Soares et al. (2016) revealed that rural poverty in Brazil is directly linked to the lack of access to land, as 81 percent of those living in rural households occupy an area considered insufficient for a family’s survival. The numbers from the most recent agricultural census from 2006 also reveal the level of land and income concentration in Brazil as a result of such skewed land policies. Family farming is responsible for 84 percent of rural properties, yet it occupies only 24.3 percent of lands suitable for human exploitation (Brazil, IBGE 2006). Furthermore, family farming is responsible for employing 74 percent of people in rural activities, which means 26 percent of the country’s economically active population (Brazil, IBGE 2006). However, when it comes to their revenues, family farmers generate only one-third of the country’s income from agricultural activities, an average of 13,000 reals per year per property.

The farming system of the smallholder farmers in Brazil is often characterized by multicrops and livestock operated under primitive technological and marketing systems. According to Wanderley (1999), one of the strategies that allow family farming to persist in rural areas is its type of production. Family farmers that do not have access to modern technologies or choose not to specialize in conventional production commonly produce different kinds
of products for human feeding. Besides their main activity, such as cropping or dairying, they often have animals for family consumption of protein as well as vegetables and fruit gardens around the household. Such systems of production have also contributed to family farming, which typically produces for domestic supply and has been highly exploited by intermediaries, including the government and the food industry throughout history. This study attempts to understand the role and effectiveness of policies relating to extension and rural services in increasing the productivity and food security of the smallholder farmers.

Past, Present, and Future Policies

The year 2004 marked a turning point when the then new government determined family farmers as the primary beneficiaries of agricultural extension policies, based on a model of sustainable rural development (Bergamasco, Borsatto, and Thomson 2016; Bergamasco, Thomson, and Borsatto 2017; Correa da Silva 2011; Diesel and Miná Dias 2016). During 2003, policymakers of the new government, in partnership with representatives of civil society and with various stakeholders, began to formulate PNATER and launched it in 2004. PNATER outlines a list of principles that should be followed for the provision of agricultural extension services supported by public resources and presents a series of innovative guidelines. The guidelines established that participatory methodologies should guide service delivery, that agroecological principles should be the technical guideline, and that family farming is the primary beneficiary, among others (Brazil, MDA, and SAF 2004).

The document states that policy management must include different actors involved in the policy arena—the federal government, state-level public institutions, family farming organizations, and other civil society organizations (including service providers). It also encourages the participation of beneficiaries (family farmers) in the planning, monitoring, and evaluation of its actions. Moreover, PNATER determines that rural extension services are pluralistic, and providers can come from a broad gamut of organizations, including the private and public sectors, nongovernmental organizations, farmer-based organizations, professional cooperatives, and educational institutions, among others. To implement the policy, in 2005 the government launched the National Program for Technical Assistance and Rural Extension in Family Farming and Agrarian Reform. The document established goals and actions to stimulate public extension programs, train family farmers, develop sectoral extension activities (working with indigenous communities, black rural communities, riverside communities, fisheries, young-
and female agricultural workers), and improve and extend the rural extension services in the country (Bergamasco, Borsatto, and Thomson 2016; Bergamasco, Thomson, and Borsatto 2017; Diesel, Miná Dias, and Neumann 2015).

In 2006, due to the demand to move forward in the process of coordinating the implementation of the policy, the new Brazilian Decentralized System of Rural Extension was formalized, which, while being coordinated by the Ministry of Agrarian Development, stipulated social control and participation in its processes. In 2010 the Congress gave PNATER the status of law, informally known as the Rural Extension Law. Its publication represented a major political breakthrough in terms of ensuring public rural extension services for family farming with some independence from changes in government.

In addition to the PNATER, other government policies aimed at smallholder farmers, with the goals of fostering food and nutritional security, social and economic inclusion, the fight against hunger, family benefits, public procurement, credit and insurance, and income generation, had essential interactions with extension services. It is important to emphasize three of these policies that strictly relate to PNATER and depend directly on the success of its execution. The main one is the National Program for Family Agriculture (PRONAF), created in 1996 but only receiving consistent funds after 2003. PRONAF is credit policy specifically for family farmers. The second one is the Food Purchase Program, through which the government purchases products from family farmers on fair and constant prices and mediates its distribution for public institutions in which the population at food insecurity risk has regular access to food. Finally, since 2009 there was also an essential new government rule added to a previous program called the National School Feeding Program. The federal government started to require that at least 30 percent of the total resources passed on by the National Education Development Fund to the states and municipalities be designated to acquire products for school meals from family farming (Brazil, MDA 2010). It is important to mention that if the delivered products are organic, both programs pay 30 percent more than the value paid for conventional products in the regional markets.

Despite these advances and investments for a more sustainable and socially responsible rural development model in Brazil, there is still a lack of studies assessing the impacts of PNATER specifically, especially from the perspective of its main stakeholders—smallholder farmers and extensionists. The research presented here examines the views of these key stakeholders on the extension services concerning the PNATER policy goals and objectives. The researchers attempt to understand and explain whether and how these efforts have
succeeded in promoting the improvements intended by the extension policy in its implementation.

**Approaches to Implementing PNATER through Extension and Rural Services**

The extension and rural services that were implemented based on PNATER took various modes of operation. Although the major goal of the extension and rural services at the state and municipality level is to translate the rural development goals set for improving the quality of life of the marginalized and smallholder communities, it took several forms of intervention depending on the demand for extension services. Major approaches of extension include the following:

- Social mobilization of family farms.
- Training of the extension staff in PNATER guidelines, formation of farmer associations and cooperatives to deal with specific problems of the farming communities.
- Organization of the key stakeholder for identifying the problems and developing locality-based solutions.
- Advising farmers on the crop and enterprise choices and methods of crop production and protection.
- Introduction of modern agricultural practices.
- Advice on existing government programs such as Bolsa Família.
- Help in access to short-term and medium-term credit for development of the commercial aspects of farming.
- Increasing food security through crop diversification and home gardening.
- Improving equality through gender and ethnicity programs.
- Increasing access to natural resources.

### 4.4 Organizational Capacity and Management

“Family farmer” emerged as a political category in Brazil during the 1900s during a crisis scenario for agricultural extension and other rural public policies. The consolidation of such a specific social group is a direct response
from civil society to the neglect of poor smallholders in rural development policies by neoliberal governments. As a result, family farming is a plural reference, related both to the traditional European notion of the peasantry and also to indigenous, black rural, and fishers’ communities, among others. The Brazilian interpretation of family farming resides in the social and economic link between the rural family and the activities developed in the land in which they live. It must be a place of both work and living. It is a notion opposed to entrepreneur agriculture, characterized by large areas of monoculture and paid employment.

The MDA was the official federal organ responsible for contracting and providing funds to the extension organizations (public or private) in the country. Figure 4.2 details the Brazilian Decentralized System of Rural Extension, including the extension services, the policy advising and evaluation organs, the policy-making bodies, and the policy execution agencies.

Public policy deals with issues faced by citizens of different countries (Dewey 1927 in Davies, Nutley, and Smith 1997). Researchers studying public policies examine what the government does and why, and how this affects intended (or unintended) outcomes (Dye 1976 in Davies, Nutley, and Smith 1997). Extension policies are often part of broader agricultural systems, and many countries do not have specific extension policies for different reasons (Oladele 2011). However, those that do have been gearing the strategies to strengthen agriculture as an engine of pro-poor growth and meet broad goals such as reduction of poverty (Birner and Anderson 2007; Sulaiman and Hall 2005). But overall, extension proponents struggle to ensure political commitment and financing for agricultural extension services to implement the policies (Feder, Willett, and Zijp 2001).

Part of the reason for lack of commitment is the fact that many extension policies—and their resulting programs and services—have not been adequately examined as to their outcomes and impacts. While there is some evidence showing high rates of return extension (Alston et al. 2000; Birkhauser, Evenson, and Feder 1991), in general, measurement and design challenges make it difficult to attribute impacts directly to extension programs and link cause and effect quantitatively (Anderson 2007; Purcell and Anderson 1997). In addition, the evolving nature and current status of the extension have contributed to difficulties in evaluating the impacts of extension systems at the national level. Extension today is characterized by both pluralism and privatization, making it difficult to define and to measure extension outcomes and impact (Knierim et al. 2017; Klerkx and Proctor 2013; Prager et al. 2016; Labarthe and Laurent 2013).
Some researchers have examined extension policies and reforms, however. Chowdhury, Odame, and Leeuwis (2014) attempted to describe how a public-sector agricultural extension organization attempted to reform its roles in implementing a major agrarian extension project. Critical challenges encountered included the reluctance of actors to change, neglect or lack of capacity for broader intermediary functions for the extension, and a refusal to view extension as facilitating learning processes. Benson and Jafrey (2013) point out the difficulties many governments have faced in reforming conventional, top-down management systems to demand-driven and pluralistic ones. Based on a literature review, these authors examined the challenges faced by extension reforms. Their findings recommend using a framework that clarifies the aims of government policy to ensure that national extension strategies best fit a country’s economic and social objectives.
In the case of Brazil, there is a clear policy linking the country’s economic and social objectives to the extension strategies and programs. The researchers conducted this study in Brazil to understand the effects of the 2004 extension policy PNATER. They did this by examining the extension services provided under the PNATER principles and objectives. Specifically, the researchers collected primary data from producers and extension personnel regarding perceptions about the extension services. Research regarding perceptions of rural services has been done in other countries; researchers used opinions of extension staff and farming households in India, Ghana, and Ethiopia in a study on gender in rural services (World Bank 2010). In Nigeria researchers studied perceptions of farmers and extension professionals regarding cost-sharing of extension services (Ozor et al. 2008).

4.5 Advisory Methods

Brazil has a long history of extension paradigms that have determined methods and approaches used in serving clientele. These have included training and visit (used by the Brazilian Agricultural Research Corporation at one time), farmer field schools, farmer-to-farmer extension, research groups, field days, trainings, demonstrations, and individual visits. The current Brazilian extension policy prescribes participatory extension methodologies and dialogue to build new knowledge and develop technological innovations, taking into consideration both indigenous and formal knowledge (Corrêa da Silva 2011). The role of the extension agent is defined as facilitator, organizer, and educator. However, Bergamasco, Borsatto, and Thomson (2016) found that extension services activities for women, the young and the elderly, and ethnic groups received low ratings from farmers in all territories. Extension agents stated that few activities, if any, are not developed for this category.

Since 2006 under Brazilian law, the extension services are directly aimed at family farming, defined according to size of production unit, predominance of family work, and earned income. “Family farmers” includes a large diversity of clientele: people in agrarian reform settlements, indigenous communities, traditional family farmers, quilombolas (traditional populations of former slaves), forest people and artisanal fishermen, and technical family farmers in agro-industrial chains. There are more than four million farming families in the country, comprising 80 percent of farmers (Corrêa da Silva 2011). The policy guidelines also address including gender, racial equality, and youth—issues that were largely neglected in previous policies (Corrêa da Silva 2011). The policy sets up guidelines for promoting income generation and value addition...
and uses a value-chain approach. Agricultural research organizations still focus mainly on commercial farming and address monoculture commodities, which are of little relevance to family farming agriculture systems. They do not tend to serve family farming because they are not prepared to deliver technology for diverse production systems (Corrêa da Silva 2011).

There are more than 20,000 public extension agents in the country, occupying over 5,000 offices, which cover 95 percent of the country’s municipalities. Fifteen NGO networks operate in different parts of the country and account for about 5,000 extension agents. This corps reaches about 1.5 million family farmers and has an annual budget of more than US$1 billion (Corrêa da Silva 2011). It is worth mentioning that extension agents from public entities usually had better working conditions than those from private entities. This is because the extensionists’ salary, offices, vehicles, and travel costs were usually funded by state governments. In some cases, extension agents from entities with less capital must use their personal vehicle for field work.

4.6 Effectiveness of Extension Services from Farmers and Extensionists’ Perspectives

The five territories from which the data were collected for this study are: Alto Jequitinhonha, Cantuquiriguaçu, Pontal do Paranapanema, São Paulo’s Southwestern, and Vale do Ribeira. First, we present the results of each territory; and second, we present the results at the national level.

Alto Jequitinhonha Territory

This territory is located at the state of Minas Gerais and comprises 20 municipalities. In this territory the researchers did 200 interviews with family farmers and 13 interviews with extensionists, from 18 municipalities. A public institution named Minas Gerais Technical Assistance and Rural Extension Company (EMATER, by its acronym in Portuguese) provides the major part of agricultural extension services. However, there were also nongovernmental and private companies performing the service through public calls during the period of the interviews. Ten extensionists interviewed at the territory worked for EMATER and another three for different private entities. Figure 4.3 shows the territory results.

Results show that the main disagreements are regarding the indicators “pedagogical conception” and “social and community organization,” which reached 91 percent and 92 percent, respectively, according to extensionists, but only 36 percent and 45 percent, respectively, according to farmers. Such
divergence is because most of the interviewed extensionists are employed by the public extension company of Minas Gerais, which adopted the PNATER guidelines and has trained its extensionists along those lines. Therefore, many extensionists reported the encouragement to establish farmers’ associations and cooperatives in the communities, and the importance and efforts to accomplish their services in a participative way with the farmers. However, the farmers’ evaluation might be explained by the low number of families visited by a single extension technician, even in collective formations, since it is a vast territory with difficult access.

According to the interviews, 13 interviewed extensionists were responsible for executing extension services to 5,448 families, an average of 419 families per extensionist. This average of farm families per extensionist exceeds the maximum stipulated by the contract with MDA, which specifies 100 families per extensionist. In Minas Gerais each extension staff from the extension public company is responsible for all the farmers from the same municipality, and in some cases, private entities can also perform the services in the same region. During the field interviews, researchers asked extensionists about the number of families that they believed they could serve while preserving service quality. The average reply was 105 families per extensionist. Therefore, even though the extension technicians recognize the quality of their services, it is unrealistic that the farmers’ evaluation would be proportional. The indicator
“frequency” revealed the insufficiency of extensionist services in the territory, achieving only 33 percent of the hypothetical ideal. This indicator is not included in the radar figures because we did not consider it as an “impact” of the policy for technical reasons.

We can observe that the indicator with the best performance evaluated by farmers from Alto Jequitinhonha was “food sovereignty and food security” (53 percent). It is essential to highlight the projection of national policies to eradicate starvation, such as the social welfare program Bolsa Família, allied with the improvement of social rights access, and rural retirement. Besides facilitating access to those policies, extension is also crucial in the food security indicator, since the farmers cited the encouragement from the extensionists (when farmers had access to the services) to diversify the production and valorization of plantation for self-consumption.

The indicator with the lowest performance, according to the farmers, was regarding the extension actions in their communities aimed at “gender, generation, and ethnicity,” at 13 percent. This indicator was also the second-worst according to the extensionists, reaching 63 percent in the evaluation of their services. Therefore, it is essential to highlight the limitation of extensionists to develop services with specific groups of women, young and older people, indigenous, black rural, and other traditional communities. This indicator had a low percentage in all five territories studied.

In Alto Jequitinhonha the access of farmers to natural resources is limited, especially access to water. This indicator had a lower percentage (57 percent) when extensionists evaluated their services. This restriction is explained by the modernization of farming, which started during the 1970s in the region. Since then, the state has been authorizing the use of public lands for planting Eucalyptus trees by the paper and cellulose industry. Before the modernization process, these public lands, locally called mangas, were meant for shared use, such as cattle fattening and the gathering of native fruits from the tropical savannah region called Cerrado. Also, most of the springs from the regions’ rivers are located at the mangas, but due to monoculture plantations of eucalyptus, the water resources are drying up and the water is not reaching the family farmers’ properties.

**Cantuquiriguaçu Territory**

This territory is located in the state of Paraná and comprises 20 municipalities. The territory had a population of 232,551 inhabitants in 2010, with 52 percent living in rural areas (Brazil, IBGE 2010). Also, 83 percent of the farms are engaged in family farming, totaling 21,184 establishments. Another
important characteristic of Cantuquiriguaçu Territory is the significant presence of rural settlements. Established as a result of pressure from social movements and agrarian reform policies, they consist of more than 4,000 farming units. Therefore, the extension services in this territory mainly catered to the farmers located in rural settlements. There are also four black rural communities and two indigenous communities, forming one of the largest indigenous reserves in the state of Paraná, constituted by Kaingang and Guarani Tribes (Brazil, IBGE 2010). A total of 200 interviews were conducted with family farmers and 14 with extensionists, in 10 different municipalities in Cantuquiriguaçu Territory.

The results for this territory (Figure 4.4) show a lower level of satisfaction by the extensionists here when compared with Alto Jequitinhonha Territory. This is because the extensionists reported low appreciation for their career development, insufficient professionals in their institutions, and the large numbers of family farmers to serve in the territory. With about 21,000 establishments of family farming in the region, there is an average of 204 families per extensionist. They stated that the ideal number should be about 60 families per extensionist.

We further observed in this territory that the extensionists’ evaluation was mostly lower than the farmers’ evaluation (Figure 4.4). The extensionists understand the principles of the extensionist work, but they state that the precarious working conditions are the main reason for poor service quality. This statement reinforces the evaluation of the indicators “pedagogical conception” (53 percent according to extensionists and 47 percent according to farmers) and “social and community organization” (46 percent according to extensionists and 55 percent according to farmers). Therefore, once the limitations of their institutions were pointed out, especially regarding lack of resources and number of families to be visited, the extensionists stressed that their primary strategy was to enable the development of family farming in the territory, encourage clients to organize associations and cooperatives, and develop participatory methodological tools. The farmers, in turn, highlighted the importance of platforms to share experiences and strengthen socioeconomic aspects in the community.

During the fieldwork, we observed that the primary extension strategy in the territory was to support groups linked to social movements. Since these farmers were more organized, the extensionists believed that their work has more impact. If we calculate the extension coverage in the territory, considering the number of family farming establishments and the number of families visited by the interviewed extensionists, one would see only 13 percent
of family farmers were visited by extensionists in the territory. Therefore, we can judge that the extensionists’ activities are inefficient, as the indicator “frequency” evaluated by the farmers was 40 percent of the hypothetical ideal, although considerably superior to the 13 percent calculated above based on extensionists’ reporting.

It is essential to observe that the indicator “food sovereignty and food security” reached 60 percent of the hypothetical ideal by farmers, even though the “income” indicator reached only 44 percent of the hypothetical ideal. Once again, we note the importance of public policies to overcome extreme poverty and food sovereignty in the poor Brazilian territories since economic and social development is slower in family farming, especially where land and income are concentrated. In this territory, the social welfare program Bolsa Família was mainly responsible for the success of the indicator “food sovereignty and food security,” allied to extension efforts to diversify production and self-consumption-oriented production for the families. The extensionists once again evaluated their actions as inferior to those reported by the farmers, reaching only 39 percent of the hypothetical ideal.

As in Alto Jequitinhonha Territory, the indicator with the lowest percentage (27 percent) relates to extension actions in their communities aimed at “gender, generation, and ethnicity” issues. The extensionists’ evaluation reached about the same percentage (27 percent). The farmers indicated a few or inexistent actions in this field, and extensionists claimed that clear
methodologies are lacking for addressing these issues through extension approaches. Together with the indicator “gender, generation, and ethnicity,” the indicator “ATER in relation to other public policies” had a low percentage—28 percent according to the farmers and 32 percent according to the extensionists. These data are mainly related to access to credit and commercialization policies, and the National Program for School Feeding. Default nonpayment by farmers and bureaucratic difficulties place restrictions to reaching goals of such policies. The extensionists report farmers’ problems to organize credit and finances. However, farmers claimed payment delays from the federal government, difficulties in regulating requested documentation, and resistance from the financial institutions to enable access to credit policies.

**Pontal do Paranapanema Territory**

This territory is located in the state of São Paulo and is composed of 32 municipalities, with a total population of 583,703. Of these, 90 percent live in urban areas, and 10 percent in rural areas (Brazil, IBGE 2010). As in Cantuquiriguaçu Territory, the Pontal do Paranapanema Territory has a significant presence of rural settlements established during the 1980s and 1990s, as a result of social movements pressure and agrarian reform policies. In total, we conducted 200 interviews with family farmers and 20 interviews with extensionists in 19 municipalities in the Pontal do Paranapanema Territory.

The indicators in this territory represent the most substantial divergence between the extensionists and the rural families’ evaluation. As to the farmers’ assessment, it presented the worst indexes among the five territories investigated for this study (Figure 4.5). However, in contrast to results in the other territories, despite the considerable workload for extensionists (an average of 357 families per extension technician, while the ideal should be about 163 families, according to the interviewed extensionists), the indicator “frequency” was 61 percent, according to farmers. In this territory, “frequency” achieved the highest percentage in the research.

Due to its history, the biggest challenge for extensionists in this territory is to enable the PNATER guidelines and to reestablish family farming organizations, which became nearly extinct during the 1990s. The farmers were encouraged to invest in commodities production and set up big cooperatives to compete in the market after the first settlements established in the region. For various reasons this model collapsed in the mid-1990s, and the farmers became indebted. In spite of this effort, however, the monoculture mentality still prevails among farmers. Another discrepancy that limits extensionists’ work is the result of the indicator “access to natural resources,” which
was 9 percent according to interviewed extensionists. The access to and pres-
ervation of natural resources is pointed out by PNATER as one of the main
 guidelines to promote agroecology, and therefore this result reveals that even
though extensionists declared that they are committed to PNATER guide-
lines, they did not fully succeed in promoting it.

The main finding from the results of the indicator system in Pontal do
Paranapanema Territory is that even though extensionists declare they are
committed with PNATER guidelines, their practices do not reflect these
guidelines in the territory. For instance, the indicator “social and community
organization”—the worst according to farmers’ evaluation (13 percent) and
the best according to extensionists (87 percent)—highlights the observed dis-
crepancy. As in other territories, the indicators with higher convergence were
“food sovereignty and food security” and “income.” Even though the percent-
ages of these indicators were low, we can once again observe the importance
of public policies to overcome extreme poverty and provide food security.
However, this territory is the one where family farming has a higher social and
economic vulnerability.

São Paulo State’s Southwestern Territory
This territory comprises a group of 15 municipalities. A remarkable charac-
teristic of this territory is the presence of a significant number of decapitalized
family farmers with diversified production systems (mainly grains, milk, vegetables), coexisting side by side with highly specialized industrial agriculture. According to the 2010 census, 312,063 people live in the territory, 21.6 percent in rural areas (Brazil, IBGE 2010). Furthermore, a significant percentage of this rural population lives under extreme poverty conditions, reaching in some municipalities up to 70 percent of their rural population. The territory has 7,208 units managed by family farmers, of which 415 were in rural settlements. In addition, there is one black farmers’ community (quilombo) and two indigenous settlements in this territory. A total of 200 interviews with family farmers and 19 with extensionists in 16 municipalities were conducted in this territory.

In this territory the indicators studied revealed a significant convergence between farmers and extensionists, although extensionists’ evaluation of indicators was inferior to farmers’ assessments (Figure 4.6). Indicators that were better evaluated were “pedagogical conception” and “social and community organization.” This is partly because this territory has several associations and cooperatives aimed at institutional market development, enabled by the federal government over the past decade. Therefore, farmers pointed out the importance of extension services in public organizations, especially dealing with bureaucracy. Thus the existence of better conditions to access markets and a superior logistics infrastructure resulted in the observed convergence.

**FIGURE 4.6 São Paulo’s Southwestern’s results for extension services, 2017**

![Figure 4.6](source)

**Source:** Authors.
Extension services depend on external conditions, so extensionists’ activities can accomplish farmers’ expectations and also enable dialogue about their objectives.

As in other territories, the percentage of the indicator “food sovereignty and food security” was high according to farmers’ evaluation, reaching 65 percent of the hypothetical ideal. It is worth mentioning that this territory is the most impoverished region in the state of São Paulo. Once again this highlights the importance of public policies to overcome extreme poverty and promote food sovereignty, besides production for self-consumption. As seen in the other territories, the indicator with the lowest evaluation is related to “gender, age, and ethnicity.” In this territory this result requires particular attention since there are a large number of black and indigenous communities and the need for specific extension services are much greater for these communities.

**Vale do Ribeira Territory**

In the state of Parana, this territory comprises 7 municipalities and has 100,821 inhabitants, 43 percent of which live in rural areas (Brazil, IBGE 2010). The region has 5,596 family farmers, with a significant presence of artisanal fishing communities (80 communities with 2,500 families), and black farmers’ communities (11 communities). In total, the researcher carried out a total of 200 interviews with family farmers and 12 with extensionists in the 7 different municipalities.

The primary provider of agricultural extension services in the territory is EMATER-PR, a state-level public entity, responsible for assisting farmers and facilitating access to rural credit, food sovereignty, social benefits, and other public policies. We observed other organizations developing specific actions with family farmers, such as courses on organic agriculture or facilitating access to rural credit. In this territory the indicator “income” was better evaluated by farmers than by extensionists (Figure 4.7). Once we deeply analyzed the farmers’ and extensionists’ answers, we understood that farmers’ income is mainly composed by Bolsa Família and rural retirement, which explains why extensionists do not consider their services essential to improve farmers’ income.

Farmers from this territory commonly complement their income with temporary off-farm jobs. Only a small portion of the interviewed farmers’ income is from their agricultural activities on-farm. Therefore, production is mainly destined to self-consumption, reflecting the convergence of results for the
indicator “food sovereignty and food security” by farmers and extensionists. Field research revealed that the territory had difficulty in accessing the market and limited logistic infrastructure for product distribution. The rural communities visited were challenging to locate, with no permanent availability of health-care and education services.

The precarious local infrastructure explains why extensionists reported that their services were insufficient to organize farmers in the territory, creating associations or cooperatives. This fact influenced the evaluation of the indicator “social and community organization,” which was 30 percent of the hypothetical ideal, according to farmers. Farmers from this territory presented the worst evaluation for the indicator “gender, generation, and ethnicity.” This limitation is worth mentioning since this territory had the most significant number of black rural communities. Interviewed black farmers affirmed that local and state governments neglected their communities, and extensionists were not trained to deal with black farmers’ specific demands.

**Summary of Results at the National Level**

Figure 4.8 and Figure 4.9 present national results regarding reach and assessment of agricultural extension services (Figure 4.8 for farmers and Figure 4.9 for extensionists).
FIGURE 4.8 Farmers’ national results for extension services, 2017

Source: Authors.

FIGURE 4.9 Extensionists’ national results for extension services, 2017

Source: Authors.
From the national-level results, we can see certain common patterns across the five territories. The main convergences among all territories observed relate to the best- and worst-evaluated indicators, namely the “food sovereignty and food security” indicator (the best) and the “gender, generation, and ethnicity” indicator (the worst). The indicator “food sovereignty and food security” reveals the importance of implementing extension and rural services programs that support policies for fighting hunger carried out by the federal government. Especially in rural areas, it shows that extension’s actions to encourage diversified production for food security were perceived to be succeeding in eradicating the extreme poverty conditions that have historically affected these territories.

The performance of indicator “income” highlighted the dependence in all five territories on rural retirement, Bolsa Família welfare, and temporary jobs outside the family farms since these were determinant income sources for the interviewed families. The findings regarding the income indicator explain why in two territories the rating of the indicator “social and community organization” was low (Pontal do Paranapanema and Vale do Ribeira), while the score for income was superior. In these territories we interviewed the highest number of farmers who declared that at least one family member had paid employment outside the rural establishment or had a temporary job outside farming. In the other three territories, where most interviewed farmers declared that their income depended on on-farm activities, we saw the highest number of farmers who were members of cooperatives or associations. The phenomenon, apparently paradoxical, that ratings for the indicator “social and community organization” led to an inferior rating for the indicator “income” was because farmers who were working in partnership with associations and cooperatives reported payment delay from the federal government’s public procurement programs. Also, logistical difficulties, lack of infrastructure, and other difficulties contributed to this situation.

The indicator “gender, generation, and ethnicity” (the worst evaluated in all territories) reveals the limitations that extension still faces. In the questionnaire we asked both open and closed questions related to specific activities developed by extensionists in communities with groups of women, young and older people, and ethnic groups, such as black rural and indigenous communities. Farmers responded with few or nonexistent activities aimed at these groups, while the extensionists reported that they develop none or insufficient activities in this field. The indicator “pedagogical conception” had the highest evaluation regarding extension practices in the five territories studied, and it was considered the most relevant guideline under extension for extensionists.
and farmers interactions. The extensionists reported their services based on participatory methodologies were effective in reaching out to the farmers, and the farmers also recognized such practices in the extensionist services as most valuable. The indicator “environmental issues” revealed the persistent limitations to promote agroecological principles. Although PNATER places highest importance on agroecological principles, reduced initiatives from extensionists, and limited appropriation from farmers, were observed in practice.

4.7 Conclusion and Recommendations

In Brazil the PNATER stands out as a political initiative most aligned with the contemporary global debates concerning the role of smallholder agriculture in ensuring food security, fostering rural development, and promoting natural resource preservation. Its elaboration and implementation process at the territory-level extension programs demonstrate the recognition of the importance of agricultural extension by the federal government and the recent resumption of investments in this area. This political decision has significant consequences, such as the creation of new institutional apparatuses (for example, the Technical Assistance and Rural Extension Department, Rural Extension Law, National Agency for Technical Assistance and Rural Extension, National Program for Technical Assistance and Rural Extension in Family Farming and Agrarian Reform), the establishment of a pluralistic system of agricultural extension, and the restructuring of the state-level public organizations providing extension and rural services in Brazil.

Recognition of family farming and traditional communities as a target audience for its actions is another essential part of PNATER contribution, which began to make visible these social categories that were historically marginalized, forgotten, or disregarded by Brazilian policymakers for a long time (Wanderley 1999). After the advent of PNATER, these marginalized groups became recognized as critical social agents demanding specific policies, including their legal institutionalization of their presence and their communities (Law 11,326/2006—Family Farming Law). The adoption of endogenous development and agroecological principles in PNATER has a significant implication for the development of rural extension and advisory services. As a result, since 2013 or so, several formal courses on these topics emerged throughout Brazil at different levels (undergraduate, postgraduate, technical education), and hundreds of research groups began focusing on the themes of family farming and agroecology (Balla, Massukado, and Pimentel 2014;
PNATER was unable to succeed in making agricultural extension recognized outside the field of its stakeholders. It is evident in the budgetary constraints that the policy has faced since its implementation, in the significant variations in its budget, in the lack of investments to structure the MDA, and in the delay in establishing its institutional structures at various levels. This remains a challenge for the PNATER’s full recognition as a strategic policy for national development. Brazilian researchers who studied PNATER commonly agree that the approaches to improve its implementation have resulted in significant distortions of its principles (Caporal 2011; Diesel and Miná Dias 2016; Diniz, Lima, and Almeida 2011; Silva and da Caporal 2016; Zarnott et al. 2017). For example, actions such as the adoption of Public Calls as a means of contracting service providers, the Rural Extension Law drafting, and the establishment of the National Agency for Technical Assistance and Rural Extension, among others, aimed to improve the efficiency of the Brazilian agricultural extension system. However, all of these actions present significant contradictions concerning PNATER’s initial intentions. All interventions seem to lack social participation, since the decisions on implementation are made almost exclusively by a small group of policymakers.

Thus, in pursuit of efficiency in the execution of the policy, many of the innovations initially proposed (for example, endogenous development and agroecology) essentially disappeared in the text of the Rural Extension Law. Other PNATER principles have been neglected, such as universalization, social control, continuous service, and decentralized coordination. Therefore, the Brazilian agricultural extension system is once again acquiring a diffusionist approach that has already demonstrated its limits in the past. In this context the present case study sheds some new insights on the challenges faced by the current implementation of extension and rural services under PNATER. We summarize the key conclusions, recommendations, and lessons from this study. Our analysis indicates that the path to improving the efficiency of a pluralistic and innovative agricultural extension system, such as the one conceived under PNATER, should be based on the decentralization of its coordination and investments in implementation processes. Centralized management has demanded structures that MDA does not have and can be considered a main factor limiting system efficiency resulting in a high level of bureaucracy and slowness in releasing resources as well as in evaluation of field reports issued by the providers (Brazil, MDA 2004).
Between 2010 and 2014, services funded by PNATER reached approximately 550,000 farm families. Despite the concern that the Brazilian family farms are growing (4.3 million currently), the current reach of the PNATER shows that the agricultural extension services financed by the federal government directly serves a broad audience. This places Brazil among the countries with the most significant access to public services of agricultural extension around the globe. However, despite significant advances promoted by the policy, many of the guidelines and objectives envisaged initially are losing importance or being abandoned over time. Various factors such as inherent difficulties in implementing the policy’s innovations, ideological differences between the different policymakers over time, pressures of the state’s regulatory agencies, lack of priority for rural extension in the context of development policies, changes in the international and national political conjuncture (for example, the 2008 financial crisis, new political coalitions in Brazil), path dependence, pursuit of efficiency, and new actors interested in the policy (medium-sized farmers), among other factors, contributed to this situation. Thus we agree with Diesel and Miná Dias (2016), who suggest that the Brazilian state underestimated the challenges, especially within the field of political economy, in implementing a policy of high complexity such as PNATER.

It is essential to recognize that PNATER was part of a set of public policies aimed at family farming that directly impacted the lives of its beneficiaries, which, among other results, removed Brazil from the FAO hunger map (FAO and IFAD 2017). Furthermore, by recognizing family farming as the target audience of the public rural extension services, PNATER contributed to the empowerment of this social category, which has been perceived as a relevant social agency not only by the public authorities but also by the civil society. Another substantial impact was the expansion of dialogue between the state and civil society, which, despite the limitations and setbacks pointed out in this chapter, allowed remarkable social participation in the governmental spaces (for example, the National Council for Sustainable Rural Development and the National Conference for Technical Assistance and Rural Extension). As a result, preexisting councils with civil society participation, which were ineffective and only of a consultative nature, became responsible for the elaboration and evaluation of federal policies.

Moreover, considering that between 2010 and 2014 approximately 500,000 families received rural extension services funded by federal resources and that during the 1990s this situation was practically nonexistent, PNATER’s reach to family farming is undeniable. However, there is little
information on the direct impact of PNATER at the field level, either because of the difficulties of assessing the impacts of agricultural extension activities or because of the inability to establish a monitoring process for this purpose. PNATER is a public policy implemented with the support of federal resources, which are dependent on political decisions for their release. This can undoubtedly jeopardize the policy in the long term, as changes in government can lead to changes in priority. Disruptions in agricultural extension policies due to the change of government have occurred in the past and may happen in the future, even considering the existence of the Rural Extension Law.

The low recognition that PNATER has with the urban sectors of society further strengthens this possibility. The recognition of the importance of state-supported agricultural extension service is restricted to those sectors directly involved with or benefiting from the policy. The documents produced at the Technical Advisory and Rural Extension National Conferences and the Technical Advisory and Rural Extension National Assessment Seminar expressed concern about the political and financial sustainability of the policy.

It is clear that, despite the obstacles, PNATER has advanced in the construction of a national system of agricultural extension with participatory processes in which the development, operationalization, and evaluation of the policy are participative and democratic. This process has encouraged different social actors involved (farmers, advisers, universities, nongovernmental organizations, public service providers, social movements, etc.) to introspect the policy and commit to its continuity, which can be an essential guarantor of the PNATER’s long-term sustainability. In other words, dismantling PNATER would not be an easy task, even if there was a political interest in doing so.

The existence within PNATER’s structure of actors who self-finance a significant part of their activities should be highlighted, as in the case of public state-level agricultural extension organizations and private organizations that provide paid services. According to data from the Brazilian Association of State-Level Public Organizations for Technical Advisory and Rural Extension (ASBRAER 2014), in 2010 only 8 percent of the budget spent with agricultural extension in Brazil came from the federal government, with state governments accounting for 79 percent of these expenditures. From these data, we can infer that PNATER’s primary function was not to finance agricultural extension in Brazil, but rather to organize this type of service demanded by Brazilian society, giving it the direction and political support it needed to reach the marginalized population.

The recent creation of the National Agency for Technical Assistance and Rural Extension in 2013 was a strategy of the federal government to guarantee
greater sustainability of the policy in the long term. It was an attempt to offer a greater autonomy to its administrators to carry out its activities, but as different authors point out, this is a path with substantial built-in risks, which are mainly associated with the retrieval of the old rural extension model (for example, technology transfer processes, broader public-state service providers, limited social participation, centralized and homogenized processes) (Thomson, Bergamasco, and Borsatto 2017; Zarnott et al. 2017).

Since the mid-2000s, Brazil has developed and implemented a national policy for an agricultural extension with innovative characteristics. Yet, as highlighted by Diesel and Miná Dias (2016), the Brazilian case emphasizes the importance of the political economy dimension in the designing and implementation of innovations in agricultural extension systems. On the one hand, PNATER, by serving more than 500,000 family farmers, was part of a set of public policies that helped to eradicate hunger and reduce poverty in Brazil. On the other hand, its implementation continues to face great difficulties in fulfilling its ambitious original objectives. The study of the Brazilian case raises an important question: Is it possible to implement innovative agricultural extension systems for smallholder farmers that can simultaneously reduce poverty, ensure food security, foster rural development, and promote environmental preservation?

Unfortunately, the Brazilian case does not offer a final answer to this question. But it helps to understand the challenges of moving in this direction. Perhaps the greatest lesson we can draw concerns the role of the state in the system. We thus conclude with brief considerations regarding the state’s role as financier, coordinator, and executor of agricultural extension and rural services. In the case of developing countries, to expect family farmers to self-finance their agricultural extension systems is at best utopian. The Brazilian evidence indicates that the state plays an essential role in promoting improvements in the productive systems and living situation of family farmers, which requires public investments. Evident in the case studied is the need for public finances to operationalize agricultural extension activities aimed at family farmers as well as to train technical staff to carry out this work. At the same time, the difficulties of making this agenda relevant to society in general and consequently in the political debates are apparent.

Regarding the coordination of the agricultural extension system, the Brazilian case highlights the importance of this process being decentralized and promoting greater social participation, which has the central role in breaking the path-dependence of the state and introducing innovations in agricultural extension systems. It is difficult for the state to coordinate a
plural and complex system like the Brazilian one. Past research has shown that the higher the level of central coordination of the system, the more it moves away from the demands of the stakeholders. Moreover, when the coordination processes are shared, stakeholders tend to engage more with the policy, assuming responsibilities and commitments, and strengthening the policy. Also, the available evidence indicates that the state should act more as a promoter of a decentralized system (for example, structuring ways to understand and meet the demands of other stakeholders) rather than assume the role of its chief coordinator. The examples of the two Technical Advisory and Rural Extension National Conferences, in which tens of thousands of people participated in each, and the National Council for Rural Development, Agrarian Reform, and Family Farming demonstrate how much social participation contributes to the process of building and implementing innovations.

Regarding the execution of the extension and rural advisory services, the Brazilian case demonstrates that the state does not need to be, nor should it be, the leading service provider. Often, other types of organizations (such as NGOs, farmer-based organizations, and private organizations) can perform this service with higher quality and efficiency. However, this does not mean that public providers do not have an important role to play; their back-office structure allows for better integration between research and extension, preparation and publication of educational material, dissemination of activities, and support to other public policies, among other possibilities. The Brazilian case demonstrates that a pluralistic system of providers brings various advantages and should be a path to follow.

Policymakers should ensure that extension staff has the necessary resources for the job at hand. Most of all, there should be sufficient numbers of staff to carry out the policy mandate. In Brazil’s case, the intention was to cover the entire country, which was not possible. Choices must be between quality and quantity; if too few agents are trying to cover too many clients, quality of their work will suffer. There is also a need to develop dialogue channels together with policies between extensionists and the local public authorities. Extensionists are in rural areas and understand well the problems of smallholders. Thus they can be essential interlocutors, supporting local farmers’ organizations, and communicating rural communities’ demands for services such as infrastructure related to transport, education, housing, and other needs.

It is essential that governments have coherent and complementary policies across ministries and departments. Policymakers need to ensure that extension staff are well-trained and have the necessary material resources
and sufficient numbers for the job. More participatory and horizontal channels between extensionists and local public authorities are urgently needed so that extensionists can effectively act as intermediaries between family farmers and the government. Finally, the Brazilian experience shows that a change in government can suddenly affect agricultural development policies, revealing its high vulnerability. Finally, the Brazilian experience shows that even innovative policies may have complications in execution, possibly leading to watering down some of the original innovations. Many factors outside of the technical aspects of designing and implementing a policy play a role, and one must be aware of potential political economy elements that may step in to affect policy implementation, however well designed the program intervention is.

This chapter examined perceptions of family farmers and extensionists regarding extension services resulting from the agricultural extension policy in Brazil. The results show that participatory methodologies should guide service delivery, that a agroecological principles should be the technical guideline, and that family farming should be the primary beneficiary, receiving free and universal (and pluralistic) services.

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