

# **Institutional Arrangements to Improve the Responsiveness of Agricultural Innovations Systems to the needs of the Poor: An Investigation of Participatory Monitoring and Evaluation in Bolivia**

Edson Gerardo Gandarillas Morales<sup>1</sup>

## **I. Introduction**

The Bolivian System for Agricultural Technology (SIBTA) is destined to promote and support technological modernization and the sustainable development of the agricultural and livestock, forestry and agro industrial sectors, with important participation by the private sector. For this purpose SIBTA finances Innovation Projects for Applied Technology (PITAs)<sup>2</sup> through Foundations for Technological Agricultural, Livestock and Forestry Development (FDTAs)<sup>3</sup> of the Highlands, Valleys, Humid Tropics and Chaco; and Projects for National Strategic Innovation (PIENs) under the supervision of the Ministry of Small Farmers' Affairs, Agriculture and Livestock (MACA).

Under the SIBTA model, producers<sup>4</sup> are expected to demand technologies based on the principle of free market mechanism (bidding), and they should pay 15% of the total investment as a contribution to the FDTA's fund. Research & Development Service Providers (R&DSP)<sup>5</sup> are also expected to compete in the bidding process in response to the demands of beneficiaries through the PITA projects submitted to the FDTA. Further, the Competitive Fund for Technological Innovation (FCI) regulation governs interactions among those actors. SIBTA hopes to accomplish the following objectives:

- To reduce rural poverty by improving the producers' income and the people's food security
- To increase the agricultural sector competitiveness through advanced and efficient agricultural technology,
- To contribute to the sustainable use and management of natural resources
- To contribute to modernizing rural producers' associations (institution-building) as basic representatives of the process of formulating demands for technological innovation

Accordingly, R&D organizations are becoming more aware about their social responsibility and concepts of downward accountability (responsiveness to end users needs and demands) (Stockbridge et al. 2003) and pro-poor activities are key words in the current R&D environment. For instance, Bolivia has experimented with different extension models, from the state institute with research and extension departments (top-down approach) through the intermediate user model with a bridging role<sup>6</sup>, to the current application of demand driven and free-market allocation of extension projects to the best bidders (Bojanic 2001).

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<sup>1</sup> Researcher from the Promotion and Research for Andean Products (PROINPA) Foundation in Bolivia, eg.gandarillas@proinpa.org

<sup>2</sup> In accordance with SIBTA's (2003) definition, a PITA represents a set of activities with a focus on agro production chains and a program vision that comprises the validation, adaptation and transfer of process, product, management and technical assistance technologies for their adoption with the purpose of promoting integrated changes in an agro production chain

<sup>3</sup> The FDTAs are nonprofit private institutions, with a public interest and mixed in nature with no political or religious orientation, created within the framework of SIBTA. They enjoy autonomy with respect to technical and administrative management and are in charge of administering and managing resources to finance PITAs from different sources, among which are the Bolivian state, organisms of multilateral, bilateral and other forms of cooperation. Their commitment is to promote a system of dynamic, competitive, efficient and participatory technological development in each macro eco region, prioritizing the demands of the actors from the agro food chains, with which intervention priorities are defined.

<sup>4</sup> Any organized actors or end-users in any one of the links of the agro-production chain that can benefit from a PITA.

<sup>5</sup> An organization, institution or enterprise, alone or associated, with a technical and administrative capacity for offering services of applied technological innovation, that participate, in alliance with a demander, in the competition for the execution of PITAs.

<sup>6</sup> The National Agricultural Research Systems (NARS) characterized by its hierarchical functions namely: basic research creates new knowledge that is passed down to adaptive research organizations who in turn pass down technology packages to (usually separate) extension organizations for transfer to farmers (Hall et al. 2000). Many studies underpinned failures in this model of agricultural research as well as technology transfer work in terms of their effectiveness to help poor farmers, specially in developing countries (Biggs and Clay 1981; Biggs 1990; Hall and Clark 1995; Hall et al. 2000)

SIBTA has worked for four years, 150 PITAs are currently in place and almost 60000 families have participated in PITAs (SIBTA, 2003). But also the FCI regulation which governs PITAs' bidding process has been changed three times by SIBTA's board of directors. Nevertheless, R&DSP, farmer organizations and FDTA's personnel had not had opportunity to express their experiences, feelings and uncertainties about the operation of the FCI regulation. Further, to date, according to the major actors (R&DSP, FDTA and farmer organizations) the FCI regulation still needs adjustments because they mentioned problems such as:

- The process of launching a PITA seems to be very bureaucratic, so responses to demands tend to be out-dated.
- Only a small number of agricultural research projects (PIENs<sup>7</sup>) have been delivered (5) as compared with a large number (223) of applied projects (PITAs). In the future, such difference may create a deep gap between supply and demand of technologies for transfer.
- Producers are demanding technologies in crops on which the former agricultural research system was not working and for which previously developed and tested technologies do not exist. R&DSPs are therefore dealing with research and technology transfer at the same time.
- As a result, PITAs are demanding experience and abilities in research as well as in technology transfer and therefore only a few well established R&DSPs can compete in the bidding process so that the entry of new bidders is constrained by their lack of research capabilities.
- According to the FCI regulation PITAs should work for only 18 months. It is therefore likely that the quality and quantity of PITA's performance is often lower than demanders require because applied research and technology transfer need more time to achieve lasting outcomes.
- Competitiveness among R&DSPs is weak, because there are few organizations with the capacities and capabilities to compete in bidding for PITAs. Further, the FCI regulation requirements (financial and logistical) do not provide incentives for small R&DSPs to participate in the bidding process.
- The methodology for demand articulation is criticized for its lack of representativeness and strong bias against food security and gender issues.
- The FDTAs have generally worked more with farmers who are well organized (15% of the total agricultural units) and with exportable crops ("viable" farmers) but smaller and poorer farmers have generally been excluded.
- The exclusion of poor farmers is a consequence of technologies with high investment requirements (for instance, fungicides or seed of new varieties, more land, etc) and of rules (for example requiring 15% as a service payment, complex bidding processes, etc.) governing PITAs and making accessibility difficult and consequently excluding farmers with limited financial resources, small scale operations and low levels of education (Lema et al 2006)
- Some PITAs have been terminated before completion, mostly because farmers have complained about R&DSP performance, and also because they have been unable to pay the 15% contribution required by the FCI regulation.

This study investigates the challenges that R&D systems face in developing new institutional arrangements. In particular the study advances and tests the hypothesis that increased impact of R&D systems requires participatory development of institutional innovations, involving at least those three actors (governments, research and extension service providers, and farmers).

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<sup>7</sup> Projects for National Strategic Innovation (PIEN) are financed under SIBTA model, but managed by the Ministry of Agriculture. This kind of project is entirely related to agricultural research and the development of new technologies, as compared with PITAs which are concerned with promoting adaption and adoption of existing technologies.

This study therefore begins with an analysis of the current institutional arrangements of the SIBTA, particularly PITA's arrangements, in order to identify more precisely the need for institutional innovations and the potential nature of such innovations, taking into consideration expectations, experiences and uncertainties of R&DSP, FDTA and farmers and farmer organizations. Arising from this analysis, Participatory Monitoring and Evaluation (PM&E) is proposed as an institutional innovation with the potential to improve SIBTA's effectiveness in the ways discussed above. PM&E is then evaluated in terms of its effects on transaction costs, risk and institutional and relational social capital. It is hypothesised that institutional innovations promoting PM&E will enhance SIBTA's effectiveness in working through PITA's, firstly reducing transaction costs and risks, and secondly improving PITAs' responsiveness to the rural poor.

## **II. Conceptual Framework**

The conceptual framework of this research is based on and developed from New Institutional Economics (NIE), Social Capital, and Participatory Monitoring and Evaluation (PM&E).

### **1. New Institutional Economics (NIE)**

NIE is a branch of economics, which attempts to get behind the assumptions of basic neo-classical economics<sup>8</sup>, especially those of perfect competition<sup>9</sup>, that diverge from the real world. Further, NIE emphasizes that the term institution means "rules of the game", formal or informal rules "*defining the incentives and sanctions affecting people's behaviour and interaction*" (Dorward et al 2002: p5). Organizations are then the "players of the game", groups of individuals bound by a common purpose to achieve objectives: they include political bodies, economic bodies, and social bodies (North 1990; Dorward et al 1998). Another important distinction within NIE is between institutional environment, and institutional arrangements (Davis & North 1971): The former are the broader set of institutions (rules) within which people and organisations develop and implement specific institutional arrangements in a society. Institutional arrangements are the forms of contract or arrangement that are set up for particular transactions between contracting parties, governing the way that these parties co-operate or compete.

Institutions have only recently been recognized as a variable of development significance and an important element in economic policy. In this NIE may be used to explain the determinants of institutions and their evolution over time and to evaluate their impact on economic performance, efficiency, and distribution (Nabli & Nugent 1989). In this study NIE concepts, especially those related to transaction costs, are used to analyse PITA's institutional arrangements in terms of its performance (nature and effects), so that it can evolve harmoniously with the dynamic generated by the economic agents in the PITA's bidding process. The following sections therefore examine different aspects of transaction costs, namely their factors, remedies and operation.

#### **1.1. Transaction Costs**

Transaction costs are difficult to define; however Kydd & Dorward (2004: p959) stated that: "We recognize three different functions of transaction costs: costs incurred to protect oneself against risks of transaction failure; costs incurred to protect a contracting counter-party against transaction failure, to induce them to enter a contract; and costs incurred in meeting licensing or other requirements of bureaucratic and rent seeking government agencies and officials". According to this definition,

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<sup>8</sup> In neoclassical economic theory, exchange, is regulated by the price mechanism, which itself responds to forces of supply and demand. The relationship between supply and demand is such that they act on each other to come to equilibrium. In an efficient market, supply should always equal demand.

<sup>9</sup> Assumptions under the model of perfect competition (zero transaction costs) are rationality, perfect knowledge, many participants, no barriers to market entry or exit, and homogeneous commodities.

transaction costs are incurred when economic agents obtain information about goods or services and about the other parties, more specifically when they are negotiating exchange terms and defining and protecting of property rights in order to reduce uncertainty and transaction risks (Bromley 1989; Eggertson 1994; Furubotn & Richter 1997). Transaction cost, therefore, are the source of ‘friction’ into the economic system, caused by the cross relationship among risk, uncertainty, and opportunism (Dorward 2001; Aubert et al 2004; Dorward et al 2005). We now consider these and other factors affecting transaction costs.

### **1.1.1. Factors Affecting Transaction Cost**

#### ***1.1.1.1. Risk and Uncertainty***

Risk and uncertainty are closely associated with one another, but are not identical. Uncertainty is defined as a characteristic of the environment and risk as the subjective perception of this uncertainty (Kostov & Lingard 2003); further, uncertainty is also defined as imperfect knowledge (Hardaker et al 2002) and risk as “*uncertain consequences, particularly exposure to unfavourable consequences*” (Zilli et al 2006: p231). These definitions raise two important considerations: risk cannot be defined in objective terms, and risk depends upon values held by individuals. Risk therefore may be explained in subjective terms since it depends on perceptions and values (a social issue). Further, risk and uncertainty are linked through the concept of ignorance or imperfect information. Economic agents, therefore, acknowledge their ignorance or imperfect information and incur transaction costs in order to reduce inefficiency or even transaction failure.

Dorward & Kydd (2004: p347) have identified four categories of risks, namely: risks of natural shocks (adverse weather, diseases, etc.); price risks (high transport cost, isolated markets, etc); economic coordination risks (“*the risk of failure of an investment due to the absence of complementary investments by other players at different stages in the supply chain*”); and risks of opportunism (“*risks from another player who has made complementary investments having an effective monopoly and is able to capture an undue share of the revenue in the supply chain*”). According to this categorization, risks of natural shocks and price risk can be associated with environmental uncertainty, since they are part of the economic environment, which contain a wide variety of uncertain events (Ellis 1993); likewise, economic coordination risks and risk of opportunism can be associated to the behavioural uncertainty, since they depend on individuals or groups’ subjective risk behaviour (perceptions and values).

It is well documented in the literature that the poor are the most vulnerable to risks of natural shocks and price risks (Dercon & Krishnan 2000; Holzmann & Jorgensen 2000; Sebstad & Cohen 2000; World Bank 2000); but Dorward & Kydd (2004) argue that economic coordination risks and risk of opportunism have not been reflected and documented to the same extent as natural shock and price risks, but they consider that these risks are also prevalent in poor areas. We, therefore, may recognize that the poor are the most vulnerable to risks of all categories.

Nevertheless, a common ground for all economic agents involved in a transaction is that all of them are exposed to a certain level of imperfect information: this determines their level of uncertainty and risk; but it also determines the way that they behave in the transaction process. These two features of imperfect information lead us to the concepts of bounded rationality<sup>10</sup> and opportunism<sup>11</sup>.

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<sup>10</sup> Bounded rationality is a condition in which individuals are intently rational, but are subject to limited cognitive competence as a result of imperfect information (Simon 1961; Williamson 1995). Economic agents have limited information and limited ability to process it (ACADATA 2005; MSU 2006). Bounded rationality creates uncertainty as it becomes costly to identify all possible contingencies in a contract and then specify adaptations to the contract. Uncertainty related to bounded rationality is also known as “*procedural uncertainty*” (Dorward & Omamo 2005: p17).

### 1.1.2. Remedies of Transaction Costs

A key characteristic of transaction costs as defined here is that economic agents incur them in order to reduce uncertainty and the risks of transaction failure. NIE literature and recent empirical studies have demonstrated and documented that institutions can reduce uncertainty when they are used as risk defusing mechanism in human exchange (North 1990; Williams 2002; Kostov & Lingard 2003; Taylor 2003; Anderson 2003; Shultz 2004; Dorward et al 2005; McCann et al 2005; Maltsoğlu & Tanyeri-Abur 2005). This section, therefore, deals with theory about institutional arrangements and institutional innovations development as remedies for high transaction costs. We consider these remedies in turn.

#### 1.1.2.1. Institutional Arrangements

Institutional arrangements are set up at micro level for particular context-specific transactions and are essentially contractual arrangements established between economic agents in order to increase net income allowing for transaction and transformation costs and risks (Davis & North 1971; North 1990; Williamson 2000; Stockbridge 2001) by affecting or governing the way that agents cooperate or compete (Williamson 1993). In addition, Demsetz (1967: p350) states that “*economic transactions are exchanges of property rights. There is no transaction in the absence of property rights*”: any exchange is therefore a process of transferring property rights between parties in accordance with the current institutional environment.

These concepts are important for the market of services administered by SIBTA under the institutional arrangements of the FCI regulation, as they suggest that clear specification of property rights can reduce transaction costs in a bidding process. If these specifications do not exist, contracts are incomplete<sup>12</sup>, then uncertainty, transaction risks and hence transaction costs increase; decreasing incentives for efficient resource assignment. Without incentives to adhere to rules, agents will decide to ignore them, and property rights problems arise (Alchian & Demsetz 1973).

#### 1.1.2.2. Institutional Innovations

Morrison (2000: p13) suggests that “if the existing institutions are not working as well as they might then it is appropriate to look for institutional innovations that can reduce transaction costs and risks”. Institutional innovations refer to changes in the rules and norms of various organizational structures and transactional relationships (Ruttan & Hayami 1984) and the way these can be “manipulated or leveraged to produce desired outcomes” (Hall et al 1998: p2). Institutional innovations affect the formal and informal rules which govern activities in a particular context but their development is not cost free as time, energy, political capital, and administrative capacities need to be invested in order to get favourable satisfactory results from such innovations (Williams 2002). Vernon & Hayami (1984) propose that institutional changes to increase the effectiveness and efficiency of transactions should be treated endogenously (by the parties to the contract), because important advances in the understanding of the processes of institutional innovation would be achieved and collective action may arise, which

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<sup>11</sup> Opportunism “refers to the incomplete or distorted disclosure of information, especially to calculated efforts to mislead, distort, disguise, obfuscate, or otherwise confuse” (Williamson 1985: p47). Opportunism is more than the simple defence of one’s interest or value maximization; it is “self interest seeking with guile” (Williamson 1989: p138). Opportunism is also conditioned by cultural beliefs and assumptions. Thus people do not behave opportunistically in all transactions rather it is more likely to be triggered when transacting parties perceive conflict of interest in competitive situations (Williamson 1975; 1985; 1993; 1993b; Chen et al 2002). At the same time, norms (trust, reciprocity, etc.) and other common rules among groups can affect the level of opportunism. For instance, a high level of trust among a group lowers the level of risk of opportunism and thus transaction costs (Putnam 1993; Paldam & Svendsen 2000; Pretty & Ward 2001).

<sup>12</sup> The contracts are not complete because the agents who take part in a transaction do not have complete information due to the limited capacities of obtaining and processing information. In addition, risk and uncertainty are causes of omissions, errors and emptiness in the contract. Consequently, it is necessary to modify and adapt the original contract in the future when problems arise (Martinez 2001).

can orient or influence the final outcome (institutional innovation). In the same line, Tejo (2003) suggests that the development of institutional innovations should take into consideration experiences of economic agents as well as organizations, because agents are implementing institutions routinely and they know where and why changes are required.

As institutional innovations are context-specific, their nature and significance can only be understood with reference to the time, place, culture and political context in which they are taking place (Biggs 2006). Examples of these institutional innovations are diverse and include: printing the prices on goods to reduce the costs of negotiating prices; developing standards for weights and measures; the development of accounting procedures to monitor activities; formulating incentives to work with indigenous people; reducing the amount of legal documentation to reduce the cost in the bidding process (the latter two from the FCI regulation) and so forth (Dorward et al 1998; Williams 2002; Maltsoğlu & Tanyeri-Abur 2005; Zapata et al 2006).

### **1.1.3. Operationalisation of Transaction Costs in Research**

#### ***1.1.3.1. Classification of Transaction Costs***

Transaction costs classification is related to the exchange process, as a consequence authors have used different typologies according to their purposes (policy, market, etc.); but most of the literature refers to ex-ante and ex-post activities. The former includes searching for information about goods or services to be exchanged and their values (including bargaining where necessary); searching for and screening information about potential parties to the transaction; and establishing the contract (which may also involve bargaining). The latter involves more ex post activities with the monitoring of contractual partners; the enforcement of a contract; and the protection of property rights against third party encroachment (Bromley 1989; Eggertson 1994; McCann et al 2005). In the case of SIBTA, ex-ante activities in the FCI regulation are, for example, searching for information about demands presented by bidders, bargaining, screening for the best bidder, and establishing the contract with the R&DSP and the farmer organization. Ex-post activities are monitoring by the FDTA of PITA implementation; the enforcement of a contract when any party (R&DSP or farmer organization) does not abide by the terms of the contract; and FDTA's actions protecting property rights against R&DSPs or farmer organizations.

#### ***1.1.3.2. Measurement of Transaction Costs***

The application of transaction cost theory requires both their measurement and prediction of their effects. However it is widely recognised in the literature that transaction cost economics as it stands is *“better at describing behaviour and providing diagnosis than at predicting outcomes or prescribing policies”* (Kherallah & Kirsten 2001: p36) and that transaction costs are difficult to observe and measure (Staal et al 1997; Boerner & Macher 2001; McCann et al 2005; Pingali et al 2005). NIE has generally been investigated using case studies which compare a limited number of discrete modes or organizing transactions. For such studies to be successful, researchers must isolate and keep under strict control a limited number of variables (Levy & Spiller 1994; Menard & Shirley 2000). Although *“case studies are often criticized because of their lack of generality and possible ex-post rationalization”*, they provide the depth necessary to allow researchers to determine what interaction effects are potentially relevant in a given instance and the importance of these effects on organizational outcomes and often provide a richer description and perspective than many statistical analyses offer (Masten & Saussier 2000: p223)

## **2. Social Capital**

In this section, Social Capital theory is presented in terms of its essential components, its relationship with collective action, and measurement considerations. At the end of the section the relationship between NIE and social capital is discussed to provide a link to the PM&E literature.

## 2.1. Components of Social Capital

Putnam and Coleman are the most prominent figures in this field. Putnam (1995: p67) defines social capital as “...features of social life - networks, norms, and trust - that enable participants to act together more effectively to pursue shared objectives”. Coleman (1990: p25) defines social capital in terms of “...a variety of different entities which all consist of some aspect of social structure, and which facilitate certain actions of actors –whether personal or corporate actors- within the structure”.

Putnam’s definition takes networks<sup>13</sup>, norms<sup>14</sup> and rules as the basis of people’s interaction in order to get shared objectives. Coleman’s definition emphasises that such interactions, among individual as well as corporate actors, are built in a structure. Social capital has also been conceptualized by economists: their concept uses language of externalities, public goods and transaction costs. For instance, Collier (2002) states that social capital is social because it generates externalities arising from social interaction, and it is capital only if its effects persist.

Consequently, the **forms** of social capital are structural and cognitive. Structural form facilitates information sharing and collective action and decision making through established roles and social networks supplemented by rules and procedures. As such, it is a relatively objective and externally observable construct. Cognitive form refers to shared norms, values, trust<sup>15</sup>, reciprocity<sup>16</sup>, attitudes, and beliefs, and is therefore a more subjective and intangible concept (how people think and feel) (Grootaert & van Bastelaer 2002; Krishna & Uphoff 2002).

Krishna (2000) has linked structural and cognitive forms of social capital to institutional and relational capital of social capital respectively where **institutional capital** refers to the structural elements –roles, rules, procedures and organizations – that facilitate mutually beneficial collective action and **relational capital** refers to the values, attitudes, norms (reward or sanctions<sup>17</sup>) and beliefs that predispose individuals toward cooperation with others. The cognitive basis of relational capital is also more amorphous and diffuse. Further, institutional capital is complementary with and works best alongside relational capital.

Three categories of social relations within groups or types of social capital (Aldridge et al 2002; Productivity Commission 2003) are also defined in the literature: Bonding, bridging and linking

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<sup>13</sup> A **network** is an interconnected group of people who usually have an attribute in common (sport, share same occupation, etc). Social norms are more likely to be spread and observed in a more connected society (dense network), and members of a highly connected community may find it easier to trust one another. Conversely a sparse network arises where contacts are generally weaker and more distant (Kawachi et al 1997; Lin 2001; OECD 2001; Aldridge et al 2002; MacGillivray 2002; Productivity Commission 2003).

<sup>14</sup> **Norms** are the formal and informal “rules” that guide how network members behave to each other. Hechter & Opp (2001) mentioned that without norms, it is hard to imagine how interaction and exchange between strangers could take place. Thus, informal norms can act as complements to, or even partial substitutes for, laws and associated enforcement processes. Social norms can include honesty, respect for elders, reciprocity, helping people in need, etc.

<sup>15</sup> **Trust** refers to the level of confidence that people have that others will act as they say or are expected to act, or that what they say is reliable. While trust can relate to individuals, it can also relate to groups and institutions within a society, including governments. Many authors treat trust as an element of social capital, others see it as an important source or outcome of social capital but caution against treating trust as social capital itself. (Productivity Commission 2003). ‘Trust’ is better understood not as social capital per se, but rather as a measure of it (Fukuyama 1995).

<sup>16</sup> Reciprocity is a concept which underpins many social norms. Taylor (1982) comments that each individual acts in a system of reciprocity, which is usually characterised by a combination of what one might call *short-term altruism, and long-term self-interest* - “ I help you now in the (possibly vague and uncertain) expectation that you will help me out in the future”.

<sup>17</sup> **Sanctions** are considered as component of social capital, their main function is punishment or reward for complying/breaking norms. In some groups or societies, norms are enforced through physical sanctions or threats (Aldridge et al 2002; Productivity Commission 2003).

capital<sup>18</sup>. Bonding capital therefore serves to unite the group and strengthen the ties between members; bridging capital refers to the interactions between individuals and groups which are both created by and help to create and maintain, common purpose; while linking capital serves to leverage people's social capital through collective action.

## 2.2. Collective Action

Common to most definitions of collective action in the literature is the involvement of a group of people, a shared interest within the group, and some kind of common action that works in pursuit of that shared interest. Collective action should be voluntary, and should be differentiated from agency relationships or hired labour (Marshall 1998; Vermillion 2001; Meinzen-Dick et al 2004). Many factors have been identified as facilitating collective action, including characteristics of the collective problem, characteristics of the group, institutional arrangements, technology, and the actions of national governments and other external actors (Agrawal 2001; National Research Council 2002).

Empirical research demonstrates that social capital facilitates collective action (Ostrom 2000; Schmid 2000; Dasgupta & Serageldin 2000; Stone 2001). Social capital can therefore be understood as a resource for collective action, which may lead to a broad range of outcomes. Thus, for instance, strong local social capital which does not include multiple and effective vertical links to the structures of power and control is likely to become increasingly detached and inwardly focused. Examples of collective action include the development of institutions, designing management rules, coordination of activities, information sharing and implementing decisions, and monitoring adherence to rules (Meinzen-Dick et al 2004; Poteete & Ostrom 2004).

## 2.3. Social Capital Measurement

Social capital's empirical literature is evolving, and social capital has been measured in a variety of ways. Many early studies have had to rely on rough proxies for social capital and/or have been somewhat experimental. Other studies have relied on a single variable (e.g. whether people think other people can, in general, be trusted), others have used multiple variables. Differences in the choice of variables reflect data availability, the objective of the study, and the particular way the researcher has conceptualised social capital (Winter 2000; Place et al 2004; Sultana & Thompson 2004). It is important to note that social capital is not directly observable; "*people carry it inside their heads*" (Krishna 2004: p296). What one can observe and measure are some manifestations or behavioural consequences of social capital, including both structural and cognitive elements (Uphoff 2000). Different cultures uphold different expressions of social capital; hence its observable aspects will vary contextually (Krishna 2004). Hence, the results need to be interpreted with care; in most cases they are 'suggestive', rather than definitive.

Krishna & Shrader (1999) have proposed a conceptual framework for social capital assessment (Figure 1). This tool focuses on structural and cognitive social capital at the micro level, and the ways that these types of social capital interact at the community, household, and institutional levels. Structural

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<sup>18</sup> **Bonding capital** refers to relations among relatively homogeneous groups (such as among family members, or socioeconomic groups). This strengthens the social ties within the particular group and is characterised by strong bonds (or "*social glue*"). It is "*good for undergirding specific reciprocity and mobilizing solidarity. But it may also create strong out-group antagonism*" (Putnam 2000: p22; NEFIC 2001). **Bridging capital** refers to relations between heterogeneous groups and strengthens ties across such groups. It is also characterised by weaker, less dense but more cross-cutting ties ("*social oil*"). Examples are between friends from different ethnic groups, among business associates, etc. "*It is better for linkage to external assets and for information diffusion*" (Putnam 2000: p23; NEFIC 2001). **Linking capital** is characterised by connections between those (individuals and groups) with differing levels of power or social status and wealth. Examples are links between insiders and outsiders or between individuals from different social classes. (Putnam 2000; NEFIC 2001)

(institutional) social capital enables people to take collective actions through established roles and social networks, supplemented by rules and procedures. On the other hand, cognitive (relational) social capital includes values, beliefs and social norms that are shared among members of a group and that create the conditions under which groups can work together for a common good (Krishna & Shrader 1999). Both of them are interactive and mutually reinforcing, but structural social capital is relatively objective, whereas cognitive social capital is essentially subjective, being a matter of how people feel and think.

### **3. Participatory Monitoring and Evaluation (PM&E)**

In this section of the conceptual framework we examine Participatory Monitoring and Evaluation (PM&E). Since the study will investigate PM&E as a promising institutional innovation within SIBTA, we consider here insights from the PM&E theory.

#### **3.1. Definition, Purpose and Principles**

There is no single, coherent conceptual definition of PM&E in the literature but wide scope for different interpretations as PM&E may mean different things to different people (Abbot & Guijt 1997; Campilan 1997). There are, however, common themes and concepts. Thus PM&E involves stakeholders, including local people, in deciding how progress should be measured, in defining criteria for success and in determining how results should be acted upon (Guijt & Gaventa 1998). PM&E strives to be an internal learning process which enables people to reflect on past experience, examine present realities, revisit objectives, and define future strategies, by recognizing different needs of stakeholders and negotiating their diverse claims and interest (demands) (Guijt et al 1998): most important is ensuring that local people are empowered by the process itself.

There are several purposes in the use of PM&E, for example to enhance shared understandings (i.e. to offer a forum that allows different stakeholders to articulate their perspectives); to increase participants' engagement, sense of ownership, and self-determination; to strengthen organizations and promote institutional learning; to encourage institutional reform towards more participatory structures; etc. In this context PM&E is regarded less as an instrument of reporting and auditing, and more as a means of *“enabling organizations and groups to keep track of their progress, build on their successes, and enhance their capacities for self-reflection, learning, and social responsiveness”* (Estrella 2000: p7). Thus, PM&E is used in a more transformative / emancipatory way to support learning and self-determination among those involved.

Finally, PM&E is built on the basis of participatory processes, where beneficiaries are involved at all stages, and where participation and empowerment are considered as end in themselves. PM&E is based on four principles:

- a) Participation. Two main ways to characterize participation in monitoring and evaluation are particularly emphasized: *“by whom it is initiated and conducted, and whose perspectives are included”* (Estrella & Gaventa 1998: p17; Hussein 2000),
- b) Learning. This principle is related to the improvement of human capital among the actors in PM&E. Participants involved in PM&E therefore gain skills which strengthen local capacities for planning, problem solving and decision-making (UPWARD 1997a; Ward 2000),
- c) Negotiation. According to Marsden & Ockley (1990) PM&E is a process of negotiation, based on the premise that different stakeholders will have different claims, concerns and issues, which in turn are shaped by the context-specific social values of the different stakeholders. Negotiation is perceived as contributing towards the building of trust and changing perceptions, behaviours and attitudes among stakeholders.

- d) Flexibility. PM&E demands facilitators and organizations with attitudes, skills and abilities which allow them to undertake a process of dialogue with different stakeholders. PM&E is a process which is continually evolving and adapting according to specific circumstances and needs. Multiple stakeholders with different concerns make it difficult to follow a prescribed methodology, so facilitators must be flexible and with disposition to adapt. (Lawrence et al 2000; Symes & Jasser 2000)

### **3.2. Methodology**

Different stakeholders, context and concerns make PM&E specific for each circumstance. There is therefore no one recipe for the process of PM&E: the steps should be used as a guide, and each facilitator, according to the context (social, human, etc), should adjust the process with creativity and consensus with stakeholders. However, Guijt (2000: p202) identifies the following core steps in developing a PM&E:

- a) *“Identify who should, and wants to be involved;*
- b) *Clarify participants’ expectations of the process (what are their information needs), and in what way each person or group wants to contribute;*
- c) *Define the priorities for M&E (on which goals/objectives/ activities to focus);*
- d) *Identify indicators that will provide the information needed;*
- e) *Agree on the methods, responsibilities and timing of information collection;*
- f) *Collect the information;*
- g) *Adapt the data collection methodology as needed;*
- h) *Analyse the information;*
- i) *Agree in how the findings are to be used and by whom,*
- j) *Clarify if the PM&E process needs to be sustained, and if so, how;*
- k) *Adjust the methodology accordingly”.*

### **3.3. Institutionalization**

Many of the more complex challenges of PM&E arise when organizations decide to adopt the principles and practices and find that this has widespread repercussions (Guijt et al 1998). Interest in PM&E is growing as organizations are realizing that they need to learn more about internal processes and external impacts if they want to perform better.

PM&E requires considerable resources, effort and time, which development practitioners and farmers usually do not have. Collecting and analysing data seems to be considered as lower priority in the face of more urgent and productive activities. It is also mentioned that findings tend to be under utilized and rarely influence decision making (Probst 2002). Although designing an M&E system and training can initially be costly and time consuming, it does not necessarily have to use very large time and financial resources in the long run. If beneficiary community members are using PM&E, then the costs can be distributed (Coupal 2001).

### **4. Implications for SIBTA**

Applying basic NIE concepts in this study, SIBTA can be seen as a R&D system designed to provide potential users and suppliers with access to a competitive market for research and development services. In this the FCI regulation is the institutional arrangement which governs actions of the economic agents: the farmer organizations (associations, also referred to as demanders), R&DSP (service suppliers), and the FDTA (the administrators of the process), when they are interacting in the PITA bidding process.

As in any exchange, transaction cost are the source of friction into the system, caused by the cross relationship among risk, uncertainty and opportunism (Aubert et al 2004; Dorward et al 2005). As PITAs are nested in the agricultural sector, economic agents face environmental (risks of natural shocks and price risks) and behavioural (coordination risks and risk of opportunism) uncertainty; which lead them to incur transaction costs in order to reduce risk and uncertainty.

In the case of SIBTA, farmers who are isolated in more remote and risk prone areas may incur high transaction costs and risks if they want to participate in the PITA's bidding process. Further, R&DSPs may face higher costs in reaching such farmers and fulfilling all FDTA's requirements; according to the level of transaction costs and possible revenues and the nature of risks, both of them (farmers and R&DSPs) may decide to participate or not participate in the bidding process, with negative responses leading to transaction failure.

Risk and uncertainty are linked through the concept of imperfect information; so economic agents (with bounded rationality) incur information costs in order to reduce inefficiency or even transaction failure, but imperfect information also determines the way that they behave in the transaction process (with opportunism). Applying this to the operation of SIBTA's FCI regulation, agents are exposed to imperfect information at various stages. They are therefore in a condition of bounded rationality which forces them to seek information as a way to reduce transaction risks, but in the process, they incur transaction costs in their information search. Consequently bounded rationality may be a key factor which reduces participation in PITA's bidding processes.

FDTAs, demanders and R&DSPs are also exposed to opportunism and other hazards (asymmetric information, opportunistic behaviour, adverse selection and moral hazard). Such features are also related to cultural preferences and their implications for propensity to behave in opportunistic ways. Further, SIBTA in general and PITAs in particular work with agricultural technology whose non-excludability features makes it difficult to restrict information about new technology, thus free-riding is likely among PITAs' beneficiaries. Furthermore, the asset which will be exchanged, in the PITA bidding process, is the knowledge needed to perform a service. Here knowledge is often a specific asset as the acquisition of knowledge requires an irreversible investment which is lost if the knowledge becomes obsolete (asset specificity).

As we have seen, transaction costs are common factor in the PITA bidding process, when economic agents attempt to reduce risks and transaction failure. NIE literature demonstrates that institutions can reduce uncertainty when they are used as risk defusing mechanism in human exchange (McCann et al 2005; Maltoglou & Tanyeri-Abur 2005; Dorward et al 2005). In the case of PITAs, the FCI regulation (institutional arrangement) governs interaction among economic agents. Unfortunately, this regulation has been criticized because it does not have clear specification of property rights; it does not provide incentives to promote participation; and it creates legal insecurity of economic agents (Amaya 2004; Gandarillas et al 2004). The lack of specification of property rights, for example, then leads to incomplete contracts so that, economic agents increase their investments in transaction costs in order to participate in the PITA bidding process.

A common theme across the FCI regulation is that transaction costs are positive, information is imperfect, costly and frequently asymmetric; rigid standardised contracts also mean that there is no clear specification of property rights, and therefore, it is likely that economic agents seek informal institutional arrangements which will reduce transaction cost and risks. As a result, the FDTAs have been forced to invest in adaptation costs, especially in monitoring and enforcement. The SIBTA model therefore seems to be a market for services but it has been developed by the state without sufficient understanding of the nature of its products and it is also a hierarchical mechanism with high transaction costs and risks.

The research involves the identification of bottlenecks in FCI regulations (steps in the processes and particular institutional arrangements with high transaction cost and risks) and this then leads on to consideration of institutional innovations to overcome these bottlenecks. This process has involved the FDTAs, demanders and R&DSPs, taking account of their perceptions, values, experiences and expectancies as the users and implementers of such innovations. This is the focus of section III.

As the time scale of the research did not allow a sequential process of development and testing of institutional innovations after analysis of bottlenecks in the FCI and identification of possible institutional innovations by stakeholders, PM&E was selected earlier on in the research process as a promising institutional innovation for testing, on the basis of theoretical analysis and the researcher's experience with PM&E, and with the FCI regulations. This is the focus of section IV.

The study considers PM&E as a form of collective action, which enables community-based organisations (demanders) to analyse and interpret innovation in technologies and farming practices, to learn from their experiences, to adjust strategies accordingly, and to participate more in PITA decision making and control. Both NIE and social capital theory provide important insights into the benefits (and difficulties) of PM&E.

PM&E creates social exchange among its users (FDTA, R&DSP and farmer's associations). As with all exchanges, it is heavily influenced by individuals' social capital, transaction cost and risks (environmental and behavioural conditions). In this social capital is important in the way that it facilitates collective action (Uphoff 2000; Ostrom 2000; Stone 2001) and that collective action then increases the benefits of compliance with expected behaviour or increases the cost of non-compliance (Grootaert & van Bastelaer 2002). In this social capital should contribute to reduced transaction costs and risks.

In the case of farmers' associations (demanders), PM&E can also mobilize farmers' relational (norms, values, beliefs) and structural (roles, rules, and procedures within the associations) social capital, so that farmers may improve their bonding (unite the group), bridging (interaction with other groups or associations) and linking (leverage people's social capital, for instance, with FDTAs and R&DSPs) type of social relations. As a result, farmers' associations may enhance their associations and to participate more in PITA decision making and control.

In addition, social capital can affect development through information sharing and decision making. In the former, it can reduce imperfect information and in the latter it can reduce opportunism, in both cases again reducing transaction costs and risks. Similarly, PM&E can foster information sharing and promote participatory decision making processes.

In the case of R&DSPs and FDTAs, it is therefore hypothesised that the inclusion of PM&E in the M&E process of both organizations may help them to reduce their high adaptation costs, especially those related to monitoring and enforcement when the PITA project is in place. At present, FDTA's personnel are in charge of the M&E process, which is conventional, dealing with physical and financial aspects of project management and based on projects' logical framework. However the literature also suggests that PM&E requires considerable resources, effort and time, and especially changes in attitudes, since it is a highly political exercise, which involves issues of power and equity. As a process of organizational change, PM&E may also affect organizational structures (new rules of the game, incentives and sanctions), and practices (new roles and procedures).

Overall the PM&E process should develop human and social capital among PITA beneficiaries and this has the potential for beneficial spill-overs, strengthening their capacity to make effective demand for

other services, including those in other sectors: it is therefore intended that PM&E may enhance R&DSP's services to PITAs and promote PITA success by ensuring that services better meet demand.

### **III. Analysis of PITA's Institutional Arrangements**

This research is divided in two parts, namely analysis of PITA's institutional arrangements and of Participatory Monitoring and Evaluation. These two parts are developed in section III and IV respectively. Each section includes its particular research questions, hypothesis, procedures and results and discussion.

#### **1. Research Question and Hypothesis**

This study analyses current PITAs' institutional arrangements in Bolivia, according to the Regulation of the Innovation Competitive Fund (FCI Spanish acronym) under the SIBTA model. This section deals with the analysis of such regulation taking into consideration the following research questions and hypothesis:

##### **1.1. Research Questions**

How could institutional arrangements related to PITAs be modified to improve competitiveness and responsiveness to the poor among service providers and demanders respectively? To address this question, a number of sub-questions are investigated:

- a) What institutional arrangements are currently in place? How do they work (in terms of a flow chain)?
- b) Where are the bottlenecks (high transaction costs and risks) located?
- c) What institutional innovations can R&DSPs, FDTAs and demanders propose to overcome these bottlenecks?

##### **1.2. Hypothesis**

High transaction costs and risks associated with the rules of the FCI regulation reduce demanders' and R&DSPs' participation.

- a) High transaction costs and risk reduce participation of poor people in PITAs
- b) High transaction costs and risk reduce participation of R&DSPs in the bidding process, reducing the extent and benefits of competition.

#### **2. Procedure**

In order to elucidate the question "how could institutional arrangements related to PITAs be modified to improve competitiveness and responsiveness to the poor among service providers and demanders respectively?" the methodology has been divided in two steps, namely: Institutional arrangement diagnosis, and Institutional innovation development.

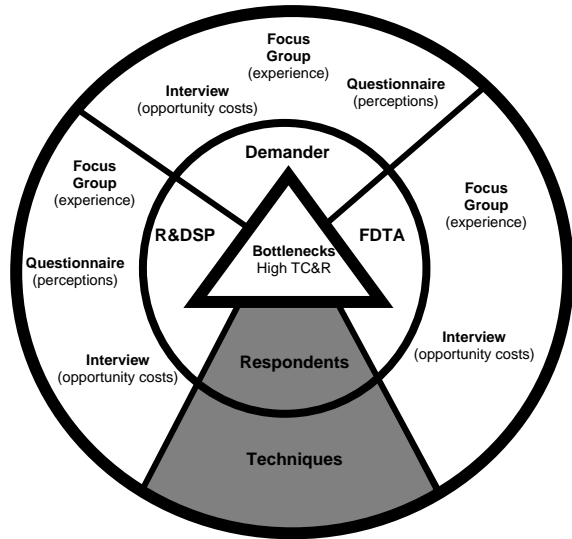
##### **2.1. Institutional Arrangements Diagnosis**

###### **2.1.1. What institutional arrangements are currently in place?**

In order to elucidate this question, the researcher should identify roles and procedures of each major actor, when they are operating the FCI regulation (institutional arrangement). Further, the current use of

such regulation should be mapped (using a flow chain). This mapping gives the opportunity to organize the institutional arrangements according to Eggertson’s classification of transaction cost (searching, screening, contract, monitoring and enforcement) and also to compare the present use with the theoretical regulation (as explained in the manual of the FCI regulation).

To facilitate this process, participant observation was the main tool of data collection, supported by use of secondary data. Consequently, participant observation has been used in the process of mapping the current institutional arrangements (FCI regulation). The researcher took part (with the role of observer) in the operation of such regulation, which identified actors, roles and procedures. It was planned to work with representatives of all four FDTAs, and with most of the bidding processes implemented by them during 2004. It was most important to have a complete map of the process rather than to participate on each bidding process.



**Figure 1. Respondents and techniques of data collection (source and methodological triangulation)**

**2.1.2. Where are the bottlenecks located?**

In order to elucidate this question, it is necessary to explain the meaning of bottlenecks in this context. Bottlenecks are the institutional arrangements perceived by their users as restrictors which reduce the extent and benefits of competition (in the case of R&DSPs) and participation (in the case of the demand side). Such restrictions, it is suggested, are caused by the presence of high transaction costs and risks. Thus, this section intends to identify major actors’ perceptions about the location of the bottlenecks and high transaction costs and risks in the FCI regulation, as identified by empirical investigation. Data was collected from FDTAs, R&DSPs and Demanders implementing PITAs (source triangulation). A variety of instruments were used to capture the range of information required and to provide methodological triangulation: focus groups, interviews and questionnaires. The relationship between methods and stakeholders are summarised in Figure 1.

Altogether, the researcher has a set of bottlenecks identified by the three major actors, according to their perceptions about opportunity cost and risks, underpinned by quantitative and qualitative data. Source (Silverman 2000) and methodological (Mason 1998) triangulation enhance empirical validity and also contribute to the degree of consistency with which perceptions are assigned to the same bottleneck by different observers (thus enhancing reliability).

## **2.2. Institutional Innovations Development**

### **2.2.1 What institutional innovations can we propose to overcome bottlenecks?**

In order to elucidate this question, it is necessary to explain the meaning of institutional innovation in this context. It is hypothesised that the existing institutions in the FCI regulation that governs interactions among FDTAs, R&DSP and demanders are not working as well as they might since they are increasing transaction cost and risks. As a result, changes in the rules and the way these can be manipulated to produce desired outcomes are needed; such new institutions are called institutional innovations. Thus, this section uses empirical evidence to identify institutional innovations, so that the FCI regulation could be improved.

The researcher facilitated participation of three major actors in the process (FDTA, R&DSP and demanders), as institutional innovation must take into consideration actors' experiences, and uncertainties (Vernon & Hayami 1984; Tejo 2003) in order to identify a set of institutional innovations that can be understood with reference to the time, place, culture and political context in which they are taking place (Biggs 2006). Institutional innovations were identified with participation of the main actors in the process of implementation the FCI regulation. The methodology included focus group discussions as a data collection tool.

## **3. Results and Discussion**

The analysis of the current institutional arrangements (FCI regulation) has identified the following highlights:

- Demanders, R&DSPs, and FDTAs have identified many risks and transaction costs in the implementation of the FCI regulation, which have reduced their participation in the process. The intensity and importance of risks and transaction costs vary according to each actor's interests and roles in the system.
- Poor people are excluded during the bidding process as well as during PITA project implementation in three ways. First, the FDTAs have used a procedure of demand expression which limited participation of poor farmers, since personnel do not 'collect' demand in isolated, risk prone areas, where poor people often live. Second, poor farmers, who were approached by the FDTA personnel in order to identify their demands, are unable to pay 15% of fees as the FCI regulation requires, and poor farmers consider this rule as a factor which diminishes and discourages their participation in the bidding process. Third, as the process of demand collection does not consider poor people's context, the expression of demand is partial and incomplete and such incompleteness leads to high risk of PITA failure when the PITA is in place, since R&DSP's technology is not generally what poor people are expecting.
- Farmers who are participants in the system incur transaction costs in order to reduce risks and uncertainty. We argue that imperfect information and hence opportunism are the main source of transaction costs. First, farmers are often in a condition of asymmetric information in most of the steps of the FCI regulation (especially in ex-ante activities) and this leads to high levels of uncertainty and risk, but also affects the way that they behave in the PITA process. Second, farmers are exposed to forced selection since they do not trust in R&DSPs' technology, but nevertheless have to establish an alliance with an R&DSP in order to get a PITA and they have to select the R&DSP whom they believe (with bounded rationality) represents a lower risk of poor performance in the PITA project. Third, in ex-post activities, free-rider problems are common, since farmers' fees do not consider farmers' context and therefore poorer farmers cannot afford to pay. This situation is exacerbated by the non-excludable nature of technologies, the incompleteness of contracts (where property rights are not clearly specified and farmers'

and FDTAs' faults are not penalized), and by R&DSPs' poor performance. All these factors increase adaptation and enforcement costs, increasing total transaction costs.

- R&DSPs have reduced their participation in the PITA bidding process because they are exposed to risks and transaction costs in ex-ante as well as ex-post activities: in the former, there is a high risk of losing the bidding process, because 30% of R&DSPs are disqualified in the process of legal and administrative documents presentation. There is a further 75% risk of losing the technical evaluation of the PITA proposal. In ex-post activities, there is a high risk of PITA failure because R&DSPs feel a high legal insecurity, since the PITA contract strongly penalizes R&DSP's faults but does not penalizes other actors' faults. This insecurity also fosters demanders' opportunism (free-rider problem), so demanders do not pay their fees to the FDTA, which leads to disruption of the PITA project or even its termination. These are considered as factors which diminish R&DSPs' participation in the processes of bidding and PITA implementation.
- R&DSPs incur transaction costs in order to reduce risk and uncertainties. We argue that inappropriate rules, imperfect information and asset specificity are the main sources of transaction costs. The FCI regulation does not consider overheads and taxes, and as a result, R&DSPs have to pay their taxes and fixed costs from their own resources (estimated as 25% of the total cost of the PITA); this rule is considered by 94% of R&DSPs to diminish R&DSPs participation in the process. Similarly, incomplete contracts and ambiguous rules (unclear specification of objectives) in the FCI regulation lead to increased adaptation, transformation, and enforcement costs, so transaction costs increase. Imperfect information, especially in the PITA proposal development is a source of increased information costs, since demand expressions are incomplete and partial. Finally, 75% of R&DSPs indicated that lack of technology is a determinant factor which diminishes R&DSPs participation in the bidding process. R&DSPs have to buy technology (for instance, paying for training or patents) in order to deliver an innovation service and as they are also small private organizations, the cost of technology represents a high cost and subsequent risk for them, because the knowledge of how to use these technologies often has asset specific characteristics. Therefore, if R&DSPs do not win the bidding process they cannot utilise this knowledge and thus may lose their investment. This further limits R&DSPs participation in the bidding process.
- FDTAs perceived similar risks to R&DSPs, but they indicated an additional risk in *ex ante* activities; there is a 40% risk of a bidding process being declared void, since there are few R&DSPs who are able to participate in the bidding process and the FCI regulation stipulates that at least three bidders should participate.
- FDTAs also indicated that there is uncertainty in relation to the R&DSP capacity and performance, because R&DSPs do not have documented administrative experience or technological performance. In order to reduce the risk of selecting an ineffective R&DSP, FDTAs increase their information and screening costs in *ex-ante* activities, but they are also aware that enforcement costs may arise when the PITA project is working. This may also happen since moral hazard and shirking problems are common among R&DSPs who are working in isolated areas. The problem is exacerbated since the FDTAs' monitoring process cannot be as efficient as FDTAs want (limited personnel, PITAs are dispersed, and FDTAs are covering extended areas); as a result the costs of FDTAs' monitoring and evaluation are high, and they incur adaptation costs to incomplete contracts and enforcement costs.

As the time scale of the research did not allow a sequential process of development and testing of institutional innovations after analysis of bottlenecks in the FCI and identification of possible institutional innovations by stakeholders, PM&E was selected earlier on in the research process as a promising institutional innovation because:

- PM&E incorporates demanders' perceptions and recommendations, so that they can evaluate the FDTA's as well as R&DSP's performance and can participate in the decision making process about their PITA, ensuring its success;
- PM&E has been associated with downward accountability, and a way to distribute transaction costs and risks in a specific project, programme, etc. (Torres 2000; Campilan 2000; Chambers 2005). It is associated with downward accountability, because PM&E can empower and inform local people (reduce bounded rationality), and help them to improve their practice and hold others to account; and
- As the demand side is considered a pillar in the system, this inclusion may also contribute to the sustainability of the system

Taking into consideration these points and those related with bottlenecks identified in the *ex-post* activities of the FCI regulation; PM&E was analysed as institutional innovation and the whole process is presented in the next section of this study.

## **IV. Participatory Monitoring and Evaluation (PM&E) Analysis**

### **1.1. Research Question**

To what extent can PM&E improve current institutional arrangements during PITAs' implementation in terms of:

- a). Organisational changes in (M&E procedures and costs) FDTAs and R&DSPs
- b) Changes in risk perceptions FDTAs and R&DSPs about PM&E; and
- c) Changes in demanders' social capital (relational and institutional social capital)?

### **1.2. Hypothesis**

PM&E inclusion in the process of PITA's implementation can reduce transaction costs and risks among actors, so that it will be accessible (to increase incentives for participation) to FDTA, R&DSP and demanders.

- a). PM&E implementation can reduce transaction cost and risks in monitoring and evaluation activities of the FDTA
- b). PM&E implementation can reduce transaction cost and risks in monitoring and evaluation activities of the R&DSP
- c). PM&E use can promote institutional and relational capital (collective action) among PITA beneficiaries.

## **2. Procedure**

### **2.1. Case Study Selection**

Empirical research of transaction costs and social capital have relied heavily on the use of case studies (examples can be found in Levy & Spiller 1994; Menard & Shirley 2000; Masten & Saussier 2000; Saussier 2000; Place et al 2004; Maltsoğlu & Tanyeri-Abur 2005). Thus, for example, Dorward (2003: p3) suggests that case studies are "*often appropriate when it is necessary to probe deeply into systems governing behaviour and interrelationships between people and institutions*". In order to reinforce ideas and findings in an instrumental case study, Yin (cited by Thomas 1998: p324) recommends that case study research should "*borrow the principle of replication from the experimental method*". Accordingly, he suggests a "*literal replication, where the cases are chosen to be as similar as possible to each other, according to your idea of what conditions are important*".

Selection of PITAs as cases for the study of PM&E implementation in PITAs was carried out taking into account the following considerations:

- Access to field work (taking into consideration the political context<sup>19</sup>)
- PITA in process with at least three months of experience implementing PITAs under the FCI regulation.
- FDTA, R&DSP and farmer association willing to participate in the research process.
- PM&E already in process (under the FOCAM project<sup>20</sup>)
- R&DSP who had delivered PITAs before
- Geographical representativeness (PITAs from all three of the departments of the Chaco region)
- Representativeness of PITAs' subject (agricultural and livestock production)

### **2.1.1. Actors and Case Studies**

Four case studies (PITAs) were selected to allow comparison of PM&E effects under different contexts and with different actors involved in the implementation of PITA projects. The research process, therefore, included interaction with those who were involved in the four PITAs, namely: FDTA Chaco, four R&DSP and four farmers' associations. Within each case study research was conducted in two parts (related to the two research questions detailed at the beginning of this section): a). Organisational changes and risk perceptions in FDTAs and R&DSPs, and b). Changes in demanders' social capital.

## **2.2. Organisational Changes in FDTAs and R&DSPs**

According to Roche (2005) change at organizational level is defined as significant alteration in the structures (rules), practices (procedures) and people (risk and benefits perceptions) brought about by a given intervention. In this sense, PM&E is considered an institutional innovation which may change FDTAs and R&DSPs' procedures, costs, risk and benefits perceptions. The methodology, therefore, has taken into consideration these variables in order to analyse the effects of adoption of PM&E. Figure 2 shows the complete process of PM&E analysis.

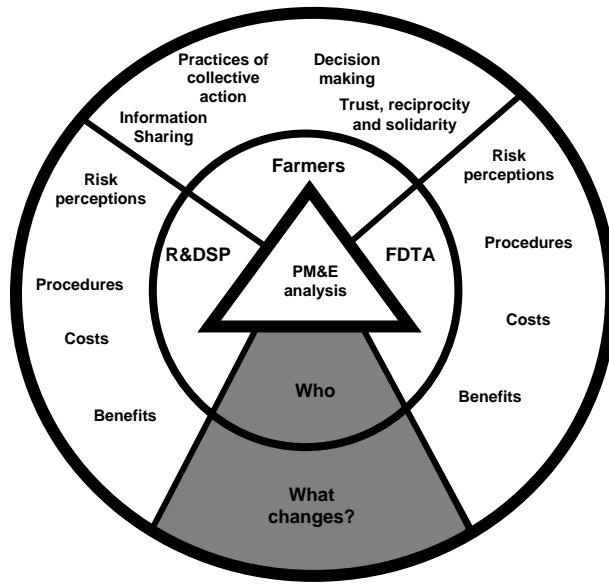
### **2.2.1. Changes in Risk Perceptions**

In order to identify potential changes in risk perceptions, two questionnaires were delivered using Likert scales (commonly used to investigate people's attitudes towards specific factors, Frankfort-Nachmias & Nachmias 1996). Questionnaires were delivered to the same respondents with the same questions twice. The first one was carried out at the beginning of PM&E implementation and the second one after 11 months, to investigate changing understanding and experience of PM&E. In the case of the FDTA, respondents were those who were directly involved in the process of M&E of the four PITAs selected as case studies. Thus, seven supervisors and two area leaders from the FDTA were respondents of both questionnaires. In the case of R&DSP, respondents were those technicians who were directly involved in the process of delivering the four PITAs. Thus, 15 technicians from four R&DSPs were respondents of both questionnaires.

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<sup>19</sup> At the period when the researcher was doing his field work, there was major political uncertainty in Bolivia, with many demonstrations against the government, road blocks and strikes. As a consequence, case studies were conducted in the less affected region (Chaco), to allow timely access by the researcher.

<sup>20</sup> 'Promoting changes' (FOCAM Spanish acronym) is the abbreviated name of the project "Participatory monitoring and evaluation (PM&E) for rural innovation in Bolivia." FOCAM intends to balance the demand for agricultural research from low-resource farmers with the supply of agricultural and livestock research so that this research responds more clearly to the target population.



**Figure 2. Respondents and nature of changes in the PM&E analysis (triangulation)**

Altogether, the methodology has analysed differences between risk perceptions before and after the use of PM&E from the point of view of R&DSP and FDTA personnel who have been involved in the process of delivering the four PITAs.

### **2.2.2. Changes in M&E Procedure and Costs**

Monitoring is the systematic and continuous assessment of the progress of a project or programme over time. Similarly, evaluation is the “*assessment at one point in time of the impact of a project or programme and the extent to which stated objectives have been achieved*” (Gosling & Edwards 2003: p108). M&E activities therefore require information to assess progress (monitoring) or impact (evaluation) of a project, programme or organization. To get such information and use it, organizations need a comprehensive, systematic and cost effective procedure of data collection and analysis, which will often need to be specifically tailored to match the organizations’ characteristics and needs (Coupal 2001).

In the case of PITAs, the process of M&E is located at step 4.2 of the FCI regulation. FDTAs, therefore, have their M&E procedures designed to match their needs, limitations, context, and the FCI regulation. In the same way, each R&DSP has its own system. Changes associated with the introduction of PM&E into existing M&E systems of each organisation were investigated using focus group interviews as these can provide an effective way to develop understanding of how people feel or think about an issue, product or service. Participants are selected because they have certain characteristics in common that relate to the topic of the focus group, so they may influence each other by responding to ideas and comments of others (Krueger & Casey 2000; Frankfort-Nachmias & Nachmias 1996).

Five separate focus groups were carried out with FDTA Chaco and with the four R&DSPs from December 2005 to February 2006. Focus group participants were the same individuals as those involved in the risk perception questionnaire described above. Focus groups discussions were delivered in a permissive, non threatening environment. The process of each focus group was developed on the basis of force field analysis (as a tool for diagnosis), and a description of procedures and costs.

### **2.3. Changes in Demanders' Institutional and Relational Social Capital**

Social capital can be analysed through its two main forms, namely institutional and relational capital. The former refers to the structural elements –roles, rules, procedures and organizations – that facilitate mutually beneficial collective action whereas relational capital is more amorphous and diffuse, has a cognitive basis and refers to the values, attitudes, norms (reward or sanctions) and beliefs that predispose individuals toward cooperation with others, it (Putnam 2000; Krishna 2000; Grootaert & van Bastelaer 2002; Krishna & Uphoff 2002). Institutional and relational capitals are complementary in that each depends on the other.

Likewise, collective action requires the involvement of a group of people with a shared interest within the group, and involves some kind of common action that works in pursuit of that shared interest. The purpose of collective action also affects the level (individual, group, etc.) and the indicators at which we have to analyse the phenomenon. At the same time, it is important to analyse collective action's performance (outcomes) since neither organizations nor individuals are the final objective, rather the use and outcomes of the collective action should be considered in the analysis (Meinzen-Dick et al 2004).

The unit of analysis in each case study was therefore the farmer's association, the demand side of the PITA project. The shared interest was to "monitor and evaluate" the innovation service as well as R&DSP's performance under the PITA projects from farmers' point of view; and the common action undertaken by farmers was the process of PM&E implementation (collective action).

PM&E was implemented in four PITAs in four farmer's associations. Two of them (association 3 and 4) were chosen since they were created on March 2005 (young organizations), and the other two were older (two years old). This allowed investigation of the effect of organization age on PM&E implementation. The following sections present the procedures used to investigate changes in institutional and relational social capital of farmers' associations as a result of PM&E implementation.

#### **2.3.1. Changes in Relational Social Capital**

As mentioned early, relational capital has a cognitive basis and refers to how people think and feel (Grootaert & van Bastelaer 2002; Krishna & Uphoff 2002). The following variables were therefore used in analysis of changes after the use of PM&E in the farmer's association since they enhance collective action (in this case PM&E): trust, reciprocity, and solidarity (Latham 2000; Paldam & Svendsen 2000; NEFIC 2001; Krishna 2004; Sultana & Thompson 2004).

Questionnaires were used to identify changes in these variables, using multiple choice questions with scales to describe perceptions and attitudes toward specific factors (Frankfort-Nachmias & Nachmias 1996). Questionnaires were delivered to the same respondents (farmers who were involved in the process of PM&E implementation in the four case studies-PITAs) with the same questions twice. The first one was carried out at the beginning of PM&E implementation (April 2005) and the second one after 11 months (March 2006), because PM&E is a participatory process, so it takes time to develop understanding and consequent use.

#### **2.3.2. Changes in Institutional Social Capital**

As mentioned early, institutional capital refers to the structural elements (roles, rules and procedures) that facilitate mutually beneficial collective action in a network (Krishna 2000; Grootaert & van Bastelaer 2002; Krishna & Uphoff 2002). When a specific collective action is analysed, in addition to the analysis of structural elements, collective actions' outcomes should be considered as a complement, since it allows a complete view of the phenomenon (Meinzen-Dick et al 2004).

In order to identify changes in institutional capital of farmers' associations as a consequence of PM&E implementation, questionnaires and focus group discussions were carried out. The following M&E related processes were identified for specific analysis taking into consideration Krishna's framework of social capital and its application to the PM&E (Krishna & Shrader 1999):

- M&E (roles, rules, procedures and outcomes) and enforcement actions, since these activities are the main processes under the use of PM&E (Coupal 2001; Guijt 2000);
- Information sharing, as this gives transparency and reduces asymmetric information and opportunistic behaviour among member groups (Krishna & Shrader 1999; Paldam & Svendsen 2000; McCarthy et al. 2004; Chambers 2005);
- Decision making, since PM&E should promote a constant process of conflict resolution at different levels within the association as well as outside (Krishna & Shrader 1999; Probst 2002); and
- Accountability of leaders, because association's members consider that their leaders represent their aspirations and demands (Krishna & Shrader 1999).

By March 2006 the case study farmers' associations had experienced 11 months of PM&E implementation, so farmers were able to identify benefits, disadvantages, procedures and costs of the PM&E process according to their perceptions and context. Farmer perceptions were investigated using focus group interviews for similar reasons and with similar procedures as described above.

Focus group members were farmers leaders ("dirigentes") who were directly involved in the process of M&E of the four case study PITAs. Six "dirigentes" of each association were participants in the focus groups carried out on March 2006 in a permissive and non threatening environment. The process of each focus group was developed on the basis of force field analysis -as a tool for benefits and disadvantages identification- and PM&E procedures and cost analysis.

### **3. PM&E Analysis Results and Discussion**

So far, the inclusion of PM&E in the current M&E of FDTA Chaco, and four PITAs (four R&DSPs and four demanders) has been analysed and discussed in terms of changes in risk perceptions, procedures and costs. This section summarizes findings and discusses results according to FDTAs, R&DSPs and the demand side. We now consider these in turn.

#### **4.1. FDTAs and R&DSPs**

Economic agents incur transaction costs in order to reduce uncertainty and the risks of transaction failure. Institutions can reduce uncertainty when they are used as risk reducing mechanisms in human exchange (Kostov & Lingard 2003; Dorward et al 2005; Maltsoğlu & Tanyeri-Abur 2005). In this study, PM&E has been analysed as an institutional innovation, which may be seen as a risk reducing mechanism in the PITA process, allowing a reduction in transaction costs.

PM&E appears to have contributed to reduce risks perceptions of FDTA's personnel and R&DSPs' technicians; the following risks were stated: Risk of opportunistic behaviour, risk of coordination failure, and risks of PITA failure.

As was stated earlier in section III, opportunistic behaviour is prevalent in the PITA projects. Problems of free-rider and moral hazard are common in the demand side and R&DSPs respectively. Both of them, therefore, represent a risk of opportunistic behaviour within the PITA.

The inclusion of PM&E in the PITA project, according to FDTA's personnel and R&DSP's technicians, appears to have reduced effects of the risk of opportunistic behaviour in two ways. First, PM&E encouraged exchange of information, so imperfect and asymmetric information may be reduced. PM&E information is also more accurate and reliable than information from the conventional M&E system, since it comes from more beneficiaries (in terms of quantity, more people exposed their views, and also in terms of quality, people from different strata expressed their expectancies, with more triangulation). PM&E also:

- represents visions of farmers as well as of R&DSPs (through discussions after activity monitoring, encouragement of agreements between both two actors);
- is pertinent (because it comes from the front line, direct to the service provider); and
- is timely (when the problem is just starting and is likely to solve or reduce it).

Second, PM&E promoted an open process of decision making within the PITA, where collective interests were prevalent over individual interests; such open process prevented attitudes of opportunism, thus it may reduce the risk of opportunistic behaviour.

In this it is important to recognise the importance of cooperation and coordination, among other factors, in defining PITAs' success. We argue this because successful PITA projects require a chain of events: identification of demands according to farmers' needs; identification of the best service provider by FDTAs; R&DSPs performing to the required standard (with the capabilities and technology to provide the innovation service); and finally farmers' acknowledgement of the innovation service and payment of their fees to the FDTA to allow FDTAs' payment to the R&DSP. If any stage or actor in this process fails, the complete process is broken, so there are serious coordination risks. The inclusion of PM&E, fosters a wider platform of discussion about M&E issues, where PITA's actors discuss activities and concerns about the PITA. This process for exchange of information contributes to a more cooperative system among actors where every actor can accomplish their roles, reducing the risk of coordination failure.

On the basis of the chain described in the previous paragraph, besides risks of coordination failure, any fault may also lead to PITA (transaction) failure. As a result, we may identify three ways in which PM&E appears to have reduced the risk of PITA failure. First, PM&E promoted an extended participation of demanders in the monitoring process; women, men, old and young, better off and poor were active participants in the monitoring process. Second, people were active participants in the process; active means that people made decisions about the PITA project by their own or in joint activity with the FDTA Chaco and R&DSPs. Third, timely decisions enabled preventive actions when problems within the PITA were growing, so any operational activity was able to be solved in proactive atmosphere. These three factors can be summarized as follows: PM&E appears to have promoted PITA's accountability to the needs of the demand side (downward accountability) and also was a tool for identification of preventive actions in order to reduce operational difficulties.

PM&E promoted accountability to the needs of demanders, because PM&E provided people with tools for demand expression to R&DSPs and FDTAs. As a result, they improved their services (skills, technology and delivery system) because they had had more opportunity to hear (voices and decisions) and respond to specific demands from people (especially the poor). FDTA's personnel and R&DSPs' technicians have realized that farmers are clients, who must be satisfied with an innovation service in order to maintain the SIBTA system.

Previous paragraphs discussed that PM&E appears to have reduced risk perceptions of the FDTA Chaco and R&DSPs. For that reason, we may say that their transaction costs have also been reduced. Data from the FDTA and the four R&DSPs indicates that the process of M&E with the inclusion of PM&E reduced costs in 24 and 14 % respectively.

In section III, actors of the system mentioned that the enforcement cost were the main source of transaction cost in the PITA projects. In the PM&E analysis, we learn why PM&E appears to have contributed to reduce these costs. Common results were identified by the FDTA Chaco and four R&DSPs. Though numbers vary (depending on variations in salaries, number of technicians involved, procedures and operative costs (e.g. car hire and fuel)), the same patterns were identified: M&E costs were distributed; preventive actions saved costs; third party enforcement costs were reduced. We now discuss these in turn.

The inclusion of PM&E in the PITA project, according to FDTA's personnel and R&DSP's technicians, appears to have reduced the enforcement cost because the three actors involved in the PITA projects used the same M&E process, so costs were distributed and they were also transferred to the demand side.

According to respondents, PM&E appears to have reduced FDTAs and R&DSPs cost, but it increased costs for farmers. This may be more helpfully viewed as better sharing and distribution of M&E activities, costs and benefits across stakeholders. For instance, as farmers were active participants in the M&E process, this process extended its actions to places where it did not arrive before (isolated or risk-prone areas). Potentially, this could mean more travelling with increased direct and transaction costs, but in this case, farmers were in charge so FDTA's personnel travelled less than before. An important issue rises here: PM&E transforms farmers' implicit M&E costs into explicit costs; before PM&E, farmers were doing M&E (in their way), but it was not recognized by FDTAs or R&DSPs; after PM&E, however, farmers' contribution is recognized and valued as well.

PM&E therefore provided a common platform, where actors discussed their concerns about the PITA; before PM&E, FDTA's personnel and R&DSPs' technicians spent operational cost (money and time) talking with individuals or just leaders in order to find solutions or plan activities: with the inclusion of PM&E, a momentum of discussion was established ("activities monitoring" and "milestone evaluation" steps), so more farmers (quality and quantity) and R&DSPs examined situations and made decisions accordingly.

Another source of reduction of enforcement cost is related to the prevention of potential problems in the PITA project, which was also raised before in the risk paragraphs of this section. PM&E fostered farmers to monitor PITAs activities when they were in place, so farmers and R&DSPs identified potential problems and they agreed in preventive actions. As a result, actors have prevented problems in a timely way so that enforcement costs have been saved

In the same line, PM&E promoted frequent exchange among farmers and technicians in activities of M&E, which reduced FDTA's enforcement costs, since their need to be involved as a third party was reduced because PM&E fostered agreements between actors. Such exchange also contributed to shared information about the PITA, so it reduced imperfect information and opportunism, reducing risks and enforcement and other transaction costs.

The promotion of PM&E as an institutional innovation leads us to consider processes of institutionalization within the FDTA and R&DSP. The establishment of institutional innovations requires a logical and iterative system of organizational change, taking into consideration issues related to people, practices and rules. We discuss these in turn.

People are the heart of any organizational body, without them, it is impossible to undertake any action or task. They also responsible for the cultural component in any organization (organizations' norms of behaviour and values), and therefore, institutional innovations should take into consideration their views. In the process of PM&E inclusion two main issues were mentioned related with people:

competence development and attitudes. The former is associated with training of the personnel, so that they can perform new tasks at required standards; the latter, is related to attitudes, the cultural side of organizations, which can be expressed as resistance to change when organizational changes is happening.

In the case of PM&E, as with other participatory methodologies, both concerns need to be tackled together, since participatory training involves not just transfer of skills and practices but fundamentally a change in attitudes. Participatory methodologies have been neglected in terms of training (see Stroud 2003; Chambers 2005), because changes in attitudes means changes in the way people feel and behave, which is not delivered in a single training session, it takes time and costs. The same happens at organizational level, when an institutional innovation is taking place, personnel may express their feelings through resistance to change, especially when changes affect their primary values, such as sense of power, and confidence. In the case of our study, personnel were concerned with competence development and attitudes, and both were developed by the Promoting Changes project (FOCAM, described earlier) through six months of experiential learning and mentoring.

Practices are the second concern in the process of institutionalization. In our study two aspects were mentioned by FDTA's personnel and R&DSPs' technicians, namely design of an eclectic M&E procedure and a design of PM&E flow of information within the FDTA. The former is associated with the combination of conventional (quantitative) and participatory (qualitative) tools of M&E, so that M&E information may fulfil requirements of quantity as well quality. The latter is related with the use of PM&E information in the process of decision making within the FDTA; this was a critical point in the process, because PM&E was supplying information to the FDTA, but FDTA personnel were not using it in the process of decision making and as a result farmers were not feeling that their extra effort was working. Unfortunately, these changes in practices were not introduced in the same speed as the work on the field, so they created dysfunctions within the FDTA.

The provision of rules during the process of change seems to be critical in the process of institutionalization, because it may give certainty to the personnel; technicians felt that their position within the organizations may be in risk because they do not know how to do PM&E, but a rule decreed by managers related with competence development may create certainty and incentive to change.

#### **4.2. The Demand Side**

It was argued in section 2 that social capital reduces transaction cost, because transaction costs are a function of and inversely related to trust, and trust is a function of social interaction (Albridge et al 2002). Social capital is also a social interaction that generates externalities and this may be beneficial (for example knowledge) but may also lead to opportunism and free riding problems (Collier 2002). On the other hand, sharing knowledge about behaviour of other agents can diminish opportunistic behaviour and so reduce transaction cost; sharing knowledge about non-behavioural world can reduce information costs; and collective action can reduce the free rider problem (Bebbington & Carroll 2002; Meinen-Dick et al 2004). In this study, PM&E has been analysed as an institutional innovation, which may be seen as a collective action which promotes relational and institutional social capital in order to reduce transaction costs in the PITA project.

The analysis of relational social capital of four associations has indicated that results vary according to variable of relational social capital (trust, reciprocity and solidarity), farmers' strata (better off, intermediate and poor) and association. However, we may discuss common patterns.

PM&E appears to have contributed to improve the values of institutional and organizational trust. This may be explained since PM&E promotes interaction among farmers, FDTA personnel and R&DSP

technicians, leading to an increase in the frequency of exchange and thus trust. Similarly, particularised trust has been increased in all associations, but especially in young associations and among poor members. This may be explained since PM&E fostered inclusion of poor people in discussions, especially those related with PITA projects, so they had opportunity to share their concerns. The extent of the increment is however associated with associations' age, with greater increment of particularised, institutional and organizational trust in young associations and smaller increment in old associations. Conversely, generalised trust and solidarity have not been affected by the introduction of PM&E, perhaps because both norms are part of the bonding norms that people have already within their families.

PM&E does not appear to have affected the norm of reciprocity, a result that applies across strata and associations. The analysis shows that associations have low culture of organizational reciprocity, medium to high individual attitude towards reciprocal exchange, and high motivation to act for the common good. Individuals have therefore, clear norms of reciprocity, but they are constituted and used in a familiar network whereas associations are a combination of several communities, where norms of reciprocity are less robust than in a familiar context, because associations involve less regular exchanges. Non-reciprocal behaviour within associations is found for all associations and strata, and this may lead to opportunistic behaviour. With PM&E, only young associations have demonstrated some indication of reduction of their lack of a norm of reciprocity: this may be explained since PM&E promoted information sharing (reduce imperfect information) and collective action (it may reduce opportunistic behaviour and free rider problem) in a situation where, with a young association, these are not already become embedded in established association relationships..

People from intermediate and poor strata of young associations show change in more variables than people from the better off stratum. They appear to have changed in particularized, institutional and organizational trust, organizational reciprocity and non-reciprocal behaviour. This may be explained since PM&E has promoted inclusion of people from the poor and intermediate strata in the processes of decision making and in the subsequent benefits of this, which was a noticeable change for them. People from the better off stratum of young associations, on the other, show much less change following the introduction of PM&E because they have not perceived an increment in terms of participation and decision making, which is understandable, since better off people are often already well connected and are already able to participate. In the case of old associations, people from the intermediate and poor strata have not perceived changes in their relational social capital; but in the case of people of better off stratum, they have changed in institutional and organizational trust, which may indicate that PM&E helped them to leverage their local network (communities and association), since they have improved their links with outsiders (FDTAs and R&DSPs).

These findings may reveal insights about the four associations. Prior to the introduction of PM&E all of them appear to have strong bonding capital (referring to relations among relatively homogeneous groups, for instance, family members), since associations' members come from communities, where people share common expectancies as well as norms. On the other hand, young associations appear to have low levels of bridging capital (relations between heterogeneous groups, for instance associations) and linking capital (connections to groups at different levels, for instance the FDTA); in the case of older associations (2 years old) they appear to have higher levels of bridging capital but still have low levels of linking capital. This can be explained by the state of development of each association (its maturity) as young associations, just starting as a group, have weaker ties and also weak interactions with outsiders. Conversely, old association are one step ahead, they have already experience as a group in interacting with outsiders (so better bridging capital), but they are still weak in leveraging their social capital through collective action (linking capital).

After PM&E implementation, young associations appear to have increased their levels of both bridging and linking social capital. People from the intermediate and poor strata benefited most since PM&E differentially promoted their participation and better integration into the association, which is underpinned by increased levels of particularised trust and organizational reciprocity (bridging capital). In the case of old associations, PM&E appears to have changed values in bridging capital but to a lesser than young associations and more among poor and intermediate strata than among better off strata.

For both young and old association, PM&E, seems to have increased their linking capital, since institutional, organizational trust, and organizational behaviour have changed to high levels. It means, that PM&E may foster connections between those with differing levels of power (FDTA and R&DSPs).

Finally, the non-reciprocal behaviour (lack of norm of reciprocity) variable maintained its values after PM&E in old associations while a slight improvement was seen in young associations. This may be explained, because as was stated in section III, there is a free rider problem in the PITA projects, which is supported by the legal insecurity in the PITA contract and also because technology has common good characteristics which make difficult to reduce the effect of free-rider problem. It seems that PM&E as mechanism for collective action started to affect the free rider problem in young organizations, since new rules were set up in order to control actions of association members; but as this study monitored these PITAs for 11 months, this period of time was not enough to demonstrate better or more consistent results.

In order to complete social capital analysis, we turn to discuss institutional social capital of the four associations. Prior analysis shows that results vary according to different types of institutional social capital (M&E as collective action, information sharing, decision making, and leadership), different people's wellbeing status (better off, intermediate and poor) and different associations. However, we identify some patterns which we discuss as follows according to studied variables of structural social capital.

PM&E appears to have changed roles, procedures and outcomes of the M&E process carried out in the four associations, especially in young associations. As a consequence the role of M&E was extended to all association members (less exclusion), M&E procedures have become more egalitarian involving all members, and R&DSPs have adapted their approach, technologies and attitudes to better serve the necessities of their clients.

Similarly, PM&E seems to have affected mainly procedures and outcomes of information sharing but not roles and rules. As a result processes of recording and keeping information were incorporated in the procedure of information sharing, asymmetric information was reduced, and organizational exchange increased within the association.

Equally important, PM&E appears to have affected roles, rules, procedures and outcomes of decision making processes within the associations. As a consequence the role of decision making was extended to all association members, a set of rules were developed and incorporated to their statutes by members from young associations, rules of decision making process were adjusted and modified by members of old associations, and decision making procedures were modified to become more egalitarian, involving all members and especially improving the effectiveness of the decision making process for poor people.

PM&E seems to have affected roles, procedures and outcomes of leadership. As a result: the role of leadership was extended to all association members, a procedure was defined to identify and reduce ineffective leadership, the effectiveness of current leaders was enhanced, and PM&E also facilitated communication of rules within the association.

Analysing structural social capital in our associations, we may argue that young associations present a weak development of roles, rules, and procedures; conversely, old associations are evolving but there are areas for further development. Apparently, PM&E may affect structural social capital of young associations faster than in old associations. It may happen because young associations have not developed all their rules, roles, and procedures, so they are open to changes and innovations; conversely, old associations (depending on the age) are already embedded with their structures and behaviours, so changes may take much time as in other participatory processes.

An analysis of relational and structural social capital, according to Krishna's (2000: p79) classificatory scheme of social capital (as discussed in section II), may help us to categorise associations' social capital. Young associations (with strong relational capital and weak institutional capital) are located at cell 3; and old associations (with strong relational capital and medium institutional capital) are located between cell 1 and 3. It means that both type of associations (young and old) are categorized as "traditional associations". According to Krishna (2000), this kind of associations needs an introduction of rules, procedures and skills, so they may evolve in order to build relational and institutional forms of social capital. This classification is supported by our data, since PM&E has been well received particularly in young associations, because it appears to have helped them to develop their rules and procedures and as a result they improved their social capital, their governance structure and their economic optimisation.

Altogether, the four variables of structural social capital (collective action of M&E; information sharing, decision making and leadership) appear to have extended participation of all members, as a result of PM&E inclusion, into associations' activities. Five aspects are especially important, which are also consistent with FDTA and R&DSPs' views. First, PM&E appears to have contributed to improved R&DSP performance. Second, power relationships within the association seems to be more balanced, since poor people were included in the process of decision making, so they were empowered and climbed the ladder of participation (from participation by consultation to interactive participation). Third, leadership effectiveness seems to be improved since leaders become more accountable to the poor. Fourth, PM&E appears to have contributed to a reduction in imperfect and asymmetric information and thus in opportunistic behaviour among association members. Fifth, the process of information sharing through PM&E converted tacit M&E, which had been done by farmers, to codified PM&E. This change is very important, since formal M&E is usually undertaken through sophisticated models, which are difficult to understand, even for professionals, (this is a common problem in formal project management). Farmers often were relegated to a second level in M&E activities, because they did not understand or simply could not do it (Chambers 1993). Through PM&E, farmers are able to codify their feelings and to introduce their views in M&E area, which has otherwise been an area only for professionals.

## V. References

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