

D. Stanfield

Paper prepared for American Evaluation Association Meeting, In Chicago, Illinois, November 9-14, 2015

## Travelling Through Time for Causal Influences: From Evaluation to the Study of Policy Implementation

As the extended civil war drew to a close in 1992, Mozambique faced a critical situation of massive poverty—especially in rural areas—and a largely subsistence-based agricultural sector plagued by decades of conflicts, low productivity and operating within a weak and impoverished State. A social movement arose from the peace accords followed by an ambitious Land Policy in 1995, a Land Law in 1997 and a Forestry Law in the late 1990s. These policy and legal innovations were designed to encourage investments, public and private, in rural communities by offering legal protection to customary community and association rights to land. A project, the Initiative for Community Lands (iTC), was launched in 2006 to help the implementation of Land Policy and the subsequent land and forestry laws.

A retrospective evaluation study of the iTC project in early 2013 applied Outcome Mapping concepts and procedures<sup>1</sup> along with some methods adapted from Outcome Harvesting procedures defined by Wilson-Grau and Brit<sup>2</sup> to assess the influences of the iTC project on communities' security of land tenure. This approach to the evaluation of the iTC is designed for a retrospective study of a complex program operating in a complex environment, where no baseline study existed. The approach produced data for the stakeholders on what the iTC achieved to inform the designers of a new iTC program about lessons learned. The evaluation study was project oriented.

This paper explores whether these uses of OM/OH methods designed for retrospective project evaluation could produce some insights into the iTC's relevance to the broader goals of Mozambique's Land Policy and Land Laws.

A Theory of Change derived to guide the retrospective evaluation suggested that an improvement in security of community land tenure would encourage the elaboration of agreements with investors, local and from outside the community, to bring new capital, technology or labor into communities and help overcome the deficits in productivity and livelihoods of rural people. The hypothesis behind the policy and legal innovations, and the efforts of the iTC to implement that legislative intent is that these efforts at defining community rights to land and the community management of local natural resources should encourage private and public investments in the affected communities.

The retrospective evaluation of the iTC focused on whether the project had helped introduce changes in the behaviors, relationships and policies of key social actors so as to enhance the capacity of those involved in securing the land tenure and natural resource rights of local communities and to increase the sustainable management and use of natural resources for poverty reduction and economic growth<sup>3</sup>. The iTC was to develop these capacities of communities to attract investments, but not actually get involved in the investment process itself.

The policy analysis tries to use the evaluation data and the techniques used to gather the data for project evaluation purposes to explore the influences of the iTC on broader policy goals of stimulating new investments in rural communities.

### Land Policy and Legislation in Mozambique

A Land Policy approved by the Mozambican Cabinet in 1995<sup>4</sup> was followed by a Land Law approved by Parliament in 1997 accompanied a couple of years later by implementing regulations and Technical

---

<sup>1</sup> See Sarah Earl, Fred Carden, and Terry Smutylo, 2001, *Outcome mapping: building learning and reflection into development programs*, IDRC,. See [http://www.idrc.ca/en/ev-26586-201-1-DO\\_TOPIC.html](http://www.idrc.ca/en/ev-26586-201-1-DO_TOPIC.html)

<sup>2</sup> Wilson-Grau, Ricardo. and H. Britt. 2012. *Outcome Harvesting*, Ford Foundation, MENA Office

<sup>3</sup> DfID, Final Project Memo, 2011 "Establishment of a Community Land Use Fund (Iniciativa para Terras Comunitarias) in Mozambique"

<sup>4</sup> National Land Policy, 1995, Council of Ministers Resolution 10/95, "Aprova a Política Nacional de Terras e as Respektivas Estrategias de Implantação" "18. These guiding principles and objectives of the National Land Policy contained herein can be summarized in the following statement: Ensure the rights of Mozambican people on the land and other natural resources as well as promote investment and sustainable and equitable use of these resources. "

Annex as well as a new Forestry Law containing important provisions for defending local rights to land and other natural resources<sup>5</sup>.

As described by the Minister of Agriculture in 2004, the Land Law and related legislation and regulations, were designed to clarify community and association rights to land in order to encourage mutually beneficial investment relationships among communities and investors, domestic and foreign:

*The legislative package is a step forward in the process of democratization and peace-building in order to achieve sustainable development in Mozambique. The recognition of rights acquired through customary occupation systems and the role of communities in land management, natural resources and in conflict resolution is seen internationally as a very innovative aspect of our legislation that will facilitate equitable development based on relationships leading to the mutual benefit of local communities and new investors, both domestic and foreign. (Preface by the Minister of Agriculture to "Land Legislation", 2004, MozLegal Lda - [info@mozlegal.com](mailto:info@mozlegal.com)).*

But by 2005 the State had done little done to implement the land laws and regulations<sup>6</sup>.

### **The Community Land Initiative (iTC)**

With strong civil society commitment to the Land Law, the Community Land Initiative (iTC) project was designed and approved in 2005, funded by a consortium of six European donors (G6) to provide some impetus for the implementation of the Land Law beginning in early 2006. The final Program Memorandum funded by the G6 describes the purpose and goal of the iTC:

*The programme **purpose** is to enhance the capacity to secure land tenure and natural resource rights of local communities in Gaza, Manica and Cabo Delgado and increase the sustainable management and utilisation of these resources for poverty reduction and economic growth.*

*The **goal** of the programme is to increase rights of rural people, in Gaza, Manica and Cabo Delgado, over land and other natural resources, increased investment and more sustainable and equitable use of these resources for poverty reduction and economic growth.*

The Program Memorandum also defined the six main components of the program which were expected to contribute to achieving the program goal:

- *Stronger and formally registered legal rights of communities to land and natural resources;*
- *Increased knowledge and capacity of local community groups to utilise natural resources in a profitable and sustainable manner;*
- *Reduced and better managed conflicts concerning land rights and natural resources;*
- *Improved land and natural resource planning and utilisation;*
- *Increased and improved partnership and cooperation between local communities, local authorities and private sector operators for the development and implementation of economic and social enterprises for their mutual benefit.*

A private company, KPMG, was contracted by the G6 to implement the iTC program in 2006, launching efforts in the Provinces of Gaza, Cabo Delgado and Manica.

The Millennium Challenge Corporation of the US negotiated its compact with Mozambique in 2007 (actually launched in 2009) to include an iTC component, to extend the iTC Fund Management coverage to include Nampula, Niassa and Zambezia.

---

<sup>5</sup> For a flavor of the debates leading to these policies and laws, see Tanner, C. (2002) "Law-Making in an African Context: The 1997 Mozambican Land Law", FAO Legal Papers Online #26; Calengo, A. with J.O. Monteiro and C. Tanner, 2007. "Mozambique: Land and Natural Resource Policy Assessment." A paper commissioned by the Embassy of the Kingdom of the Netherlands in Mozambique; CTC Consulting, 2003. – Appraisal of the Potential for a Community Land Registration; De Witt P. and S. Norfolk, 2010. "Recognizing Rights to Natural Resources in Mozambique", Resource Rights Initiative;

<sup>6</sup> See Chemonics, *Land Tenure Services*, 2006, Chapter 2, Millennium Challenge Corporation-Government of Mozambique Compact.

The methods and focus developed under G6 funding for rural lands were adopted by the MCC Compact component. Both sources of financing contracted the firm KPMG to manage the funds provided. KPMG in turn contracted service providers (SPs) to enhance community land tenure security through the delimitation of community lands, the demarcation<sup>7</sup> of association lands as well as improve community and association management capabilities. The KPMG-Service Provider collaboration is the “Change Agent” described in Figure 2.

The MCC-GoM Compact developed other procedures for the issuance of DUATs for individual urban properties. The Compact also partially filled a critical gap in the original G6 funding for the iTC, by assisting with the institutional development of the National Cadaster and the provincial Provincial Services of Geography and Cadaster (SPGCs), which are the governmental entities for the certification of the boundaries of community lands and for the titling of association lands.

As the project matured, a strategic review was done in 2008<sup>8</sup> which stressed the need for the iTC to expand its focus beyond “delimitation plus something else” to include the social preparation of communities for their collective demand for iTC services based on community understanding of the legal framework and the advantages which the law provides for communities, especially those under threat of dispossession from land grabs. In 2010 a Gender and Diversity Strategy for the iTC was completed encouraging the iTC to better incorporate women and other disadvantaged sectors in rural communities in their negotiations with investors.

In January 2010 a Mid Term Review<sup>9</sup> was conducted which initiated the preparation of a revised Logical Framework which encouraged the Fund Manager, KPMG, and the Service Providers (SPs) to publish data summarizing indicators in their SP progress reports and in their final reports. KPMG periodically aggregated data on the number of delimitations and demarcations started and completed, as well as the numbers of men and women who participated in community meetings for reporting to iTC stakeholders, including governmental agencies, NGOs, and donors<sup>10</sup>.

In summary at the end of the pilot period in 2011, a tested model of the iTC program was in place. In order to influence the changes in communities and associations envisioned in the country’s Land Policy and Land Laws, the iTC’s Fund Manager, the firm KPMG, contracted local NGOs as Service Providers, guided by various laws and administrative rules and influenced by field experiences, to engage in two activities:

- 1) socially prepare communities<sup>11</sup> for improving their administration of land and other natural resources (e.g., forests), including organizational development of Community Councils for the Management of Natural Resources (including gender and diversity efforts), and the delimitation of community lands; and
- 2) prepare local agricultural producer associations<sup>12</sup> for improving the management of their lands and other resources through the demarcation of their lands and strengthening of the management capacities of associations (including both genders and disadvantaged groups, especially young people).

---

<sup>7</sup> The CTC study describes the processes required for the delimitation of community lands resulting in a certification of community boundaries in the National Cadaster. That study also describes the more precise and elaborate procedures for the demarcation of lands in private holdings within communities, including the demarcation of lands held by agricultural producer associations, resulting in the issuance of a formal DUAT (Right of Use and Enjoyment of Land).

<sup>8</sup> Boyd, Graham and Andre Calengo, 2008, *A Strategic Analysis to Reinforce the Iniciativa para Terras Comunitarias*, Maputo.

<sup>9</sup> Cotula, Lorenzo, Agnès Deshormes, Selma Martins and João Carrilho, March, 2010, *Iniciativa Para Terras Comunitarias, Mid-term Review Report*, Maputo.

<sup>10</sup> See Volume 2 of DfID, *Terms of Reference for the Evaluation of the iTC, 2012 for the revised iTC Logical Framework*.

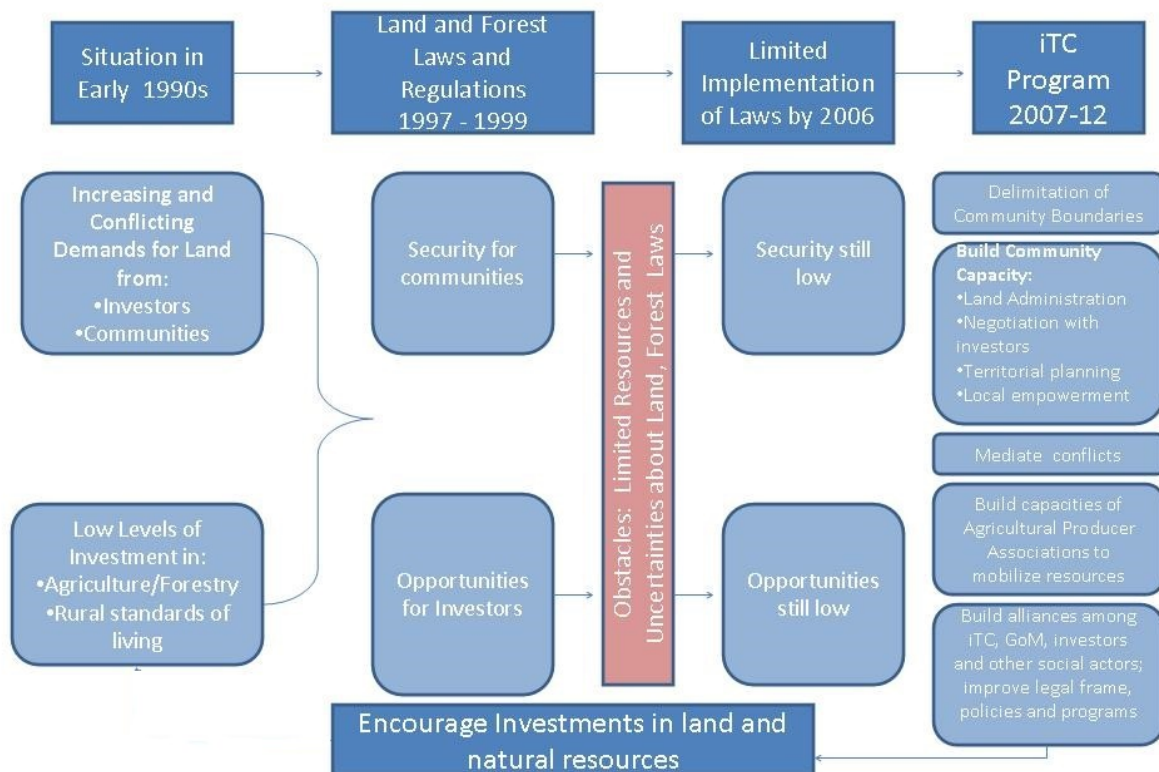
<sup>11</sup> From the Land Law of 1997, a *Local community*: is defined as a grouping of families and individuals, living in a territorial area that is at the level of a locality or smaller, which seeks to safeguard their common interests through the protection of areas for habitation or agriculture, whether cultivated or lying fallow, forests, places of cultural importance, pastures, water sources and areas for expansion. The iTC assisted communities to get a Certificate of Delineation of its land boundaries from the Provincial Cadastral Service (SPGC), following the iTC preparation of communities for administering those lands.

<sup>12</sup> An association is formed by individual agricultural producers for better linking them with the broader economy, under Decree 2 of 2006. An association has legal standing for engaging in economically productive activities.

## Evaluation Study of 2013

In early 2013 the G6 donors initiated an evaluation of the iTC project as it had operated during the period 2006-2012<sup>13</sup>, under the guidance of an evaluation Reference Group composed of donor, NGO and government representatives. This evaluation faced some challenges.

Fig. 1: iTC Program's Theory of Change



There was no baseline study of targeted communities or identification of a “control group” of communities where the iTC did not operate.

There was no explicit Theory of Change guiding the iTC project, although the logic underlying the Land legislation by 2005 had been widely debated in discussion of the Land Laws and policies since 1992, documented in an extensive bibliography which provides material for constructing a provisional Theory of Change. There were also Logical Frameworks for the two phases of the iTC project. These LFs defined expected impacts and outputs attributable to the iTC, implicitly stating a Theory of Change. The Log Frames also structured monitoring and reporting of iTC implementation progress using the above mentioned indicators.

The Evaluation Team patterned the expression of a provisional theory of change on the historical and ethnographic approach to social theory building<sup>14</sup>. Figure 1 summarizes the factors which combined in producing the Land Legislation and the expectations for the iTC<sup>15</sup>, which represents a Theory of Change sufficient for identifying the main Outcome Challenges<sup>16</sup> facing the iTC.

The evaluation study could have been restricted to using the data produced by the KPMG as required by the Logical Framework, supplemented by case studies to illustrate and validate the quantitative data. However, the iTC was born out of a social movement committed to complex changes in

<sup>13</sup> DfID sponsored the evaluation of the iTC using Outcome Mapping and Harvesting and other tools in mid 2013. See: Effective Development Group, “Evaluation of the Mozambique Community Land Use Fund—Final Report”, January, 2014, requested by the Department for International Development, UK. Jeff Dorsey and Ingrid Nelson were evaluation team leaders; Esme Joaquim and David Stanfield were evaluation team members.

<sup>14</sup> A classic example being Karl Polanyi’s *The Great Transformation: The political and economic origins of our time*, 1957, Beacon, originally published in 1944.

<sup>15</sup> For a more formal approach to building a ToC, see: *Mapping Change: Using a Theory of Change to Guide Planning and Evaluation*, GrantCraft, Ford Foundation, 2009, and its use in an evaluation see: “Theory of Change as a planning instrument for a campaign to stop violence against women”, by Ricardo Wilson-Grau, ND.

<sup>16</sup> For the evaluation, the term “Outcome Challenges” is adapted from the Outcome Mapping Manual (Earl, et. al, 2001, op cit) to mean the main objectives which the designers of the iTC program expressed as what the program is trying to achieve. These objectives also capture elements of the ToC supporting the iTC program.

communities and their relationships with investors to produce real, equitable development of rural communities. The LF indicators as used by KPMG captured empirically some aspects of these changes, but little of the complex processes of change in rural communities envisioned in the Land Law. The NGOs working as service providers in the iTC program have been dedicated to dealing with the complex situations constraining rural communities rooted in history, custom and law. Reporting on their achievements using LF indicators such as numbers of delimitations or the number of men and women who participated in meetings does not adequately capture the complex development work they are trying to do.

Nor do the LF derived indicators show the contributions of entities other than the iTC service providers to these processes. Thus, the fund manager, KPMG, the implementing Service Providers contracted by KPMG, the donors funding the program as well as governmental agencies—all of which contribute to iTC achievements—find it difficult to learn the lessons from the iTC experiences needed for improving future implementation strategies.

To at least somewhat remedy these limitations, the evaluation team considered the Outcome Mapping<sup>17</sup> methodology as helping to explore the influences of the iTC in implementing land legislation, and also superseding some limitations of the Logical Framework which stresses the need for assessing the impact<sup>18</sup> of the project using pre-defined indicators.

Another decision was not to seek *attribution*, understood as “attempting to isolate the key factors that caused the desired results and attributing them to a particular agency or set of activities.”<sup>19</sup> Our reasoning followed that of the IDRC in its rationale for its Outcome Mapping methodology:

*...experience tells us that development is a complex process that takes place in circumstances where a program cannot be isolated from the various actors with which it will interact (for example, other donors, partner organizations, government departments, communities, organizations, and groups within the community). Nor can it be insulated from the factors by which it will be influenced (these include social, political, cultural, economic, historical, and environmental factors)<sup>20</sup>.*

Therefore, the evaluation study sought to identify plausible causality in iTC’s activities as they actually evolved during project implementation as *contributing* in a small or large way, directly or indirectly, and intentionally or not to the identified specific outcomes, understood as specific changes in the behavior and/or relationships of key social actors at defined times and places.

## Outcome Mapping

In the Outcome Mapping tradition, “**boundary partners**”, are defined as “those individuals, groups, and organizations with whom the program interacts directly to effect change and with whom the program can anticipate some opportunities for influence.” The OM based evaluation study uses the term “**boundary actors**” to indicate the individuals, groups and organizations which are the focus of the iTC for the implementation of the land policy and legislation. Such actors may not be “partners” in that they may not share the iTC goals, and may not accept being “influenced” by the iTC. They are simply important to the iTC and are within the boundaries of the iTC’s field of action. In the iTC case the key Boundary Actors include communities and their leaders as well as producer associations and their managers. The iTC aims to prepare these Boundary Actors for encouraging investments into the rural sector. Other boundary actors with which the iTC interacts include investors, governmental agencies, local government units, traditional leaders, NGOs, financial agencies, local development programmes.

---

<sup>17</sup> The team was advised by Ricardo Wilson-Grau, an OM expert and at the time the chair of the Outcome Mapping Learning Community ([www.outcomemapping.ca](http://www.outcomemapping.ca)). He is also the developer, with colleague co-evaluators, of the Outcome Harvesting approach to monitoring and evaluation. Because of time and resource constraints, the team ended up applying a modified version of Outcome Mapping concepts instead of a full Outcome Harvesting approach.

<sup>18</sup> Definitions for “impact” in international development range from the World Bank’s “long-term, widespread improvement in society” and the OECD’s “longer term or ultimate result attributable to a development intervention” to the UNDP’s “long-term and national-level development change” and the Gates Foundation’s “ultimate sustainable changes, sometimes attributable to action.” For logical difficulties in studying impact statistically, see Sarah Earl, Fred Carden, and Terry Smutylo Outcome mapping: building learning and reflection into development programs, IDRC, 2001, pages 5-10. See [http://www.idrc.ca/en/ev-26586-201-1- DO\\_TOPIC.html](http://www.idrc.ca/en/ev-26586-201-1- DO_TOPIC.html)

<sup>19</sup> Sarah Earl, et al, op.cit., page 21

<sup>20</sup> Sarah Earl, et al, op.cit., page 18



There are also a number of ‘external’ actors and processes that are beyond direct control or influence of KPMG/iTC (see Figure 2), but that may have significant influence on the ability of KPMG/iTC to meet its objectives. For example, these can include shifts in broader donor priorities and policies (and the exit or entry of key donor actors), changes in national policies and the actions of key political figures and shifts in global political-economic relations linked to the actions of international financial institutions and markets or environmental factors such as floods.

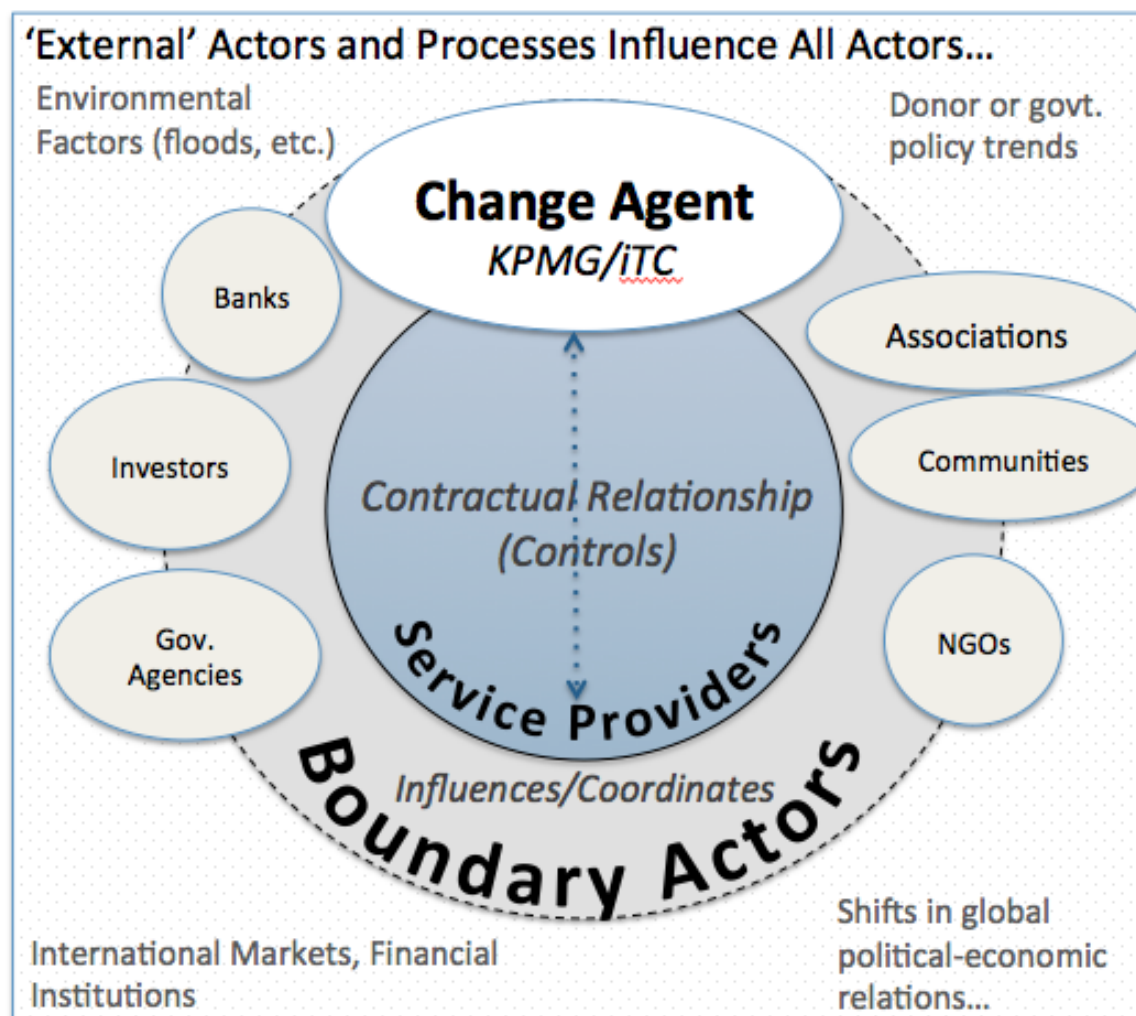


Figure 2: Structure of the iTC using Outcome Mapping Concepts

OM enables evaluators to identify, verify, and make sense of outcomes influenced by the program of interest, in this case the iTC. An **outcome** is defined as a change in the "behaviour, relationships, activities, or actions of the people, groups, and organizations with whom a program works directly"<sup>21</sup>.

The focus of OM in the iTC case is on specific outcomes experienced mostly by communities and associations of agricultural producers as boundary actors, although some outcomes involving other boundary actors were also identified. To qualify as an outcome in the evaluation of the iTC, local informants had to confirm that the claimed change in a boundary actor had to have been influenced in a small or large way, directly or indirectly, intentionally or not by the iTC program.<sup>22</sup> See Figure 3 for an example of an outcome.

<sup>21</sup> Earl; op.cit, page 1

<sup>22</sup> "While, at first glance, this appears to suggest concentrating on easier, less important, short-term achievements, in fact it does the opposite. It focuses attention on incremental, often subtle changes, without which the large-scale, more prominent achievements in human well-being cannot be attained or sustained." Sarah Earl, et al, op. cit., page 21.

**Figure 3: Example of an outcome: Outcome Number 9 from Nhamaonha Community in Manica**

*[The change in a boundary actor that iTC influenced.]*

a. *Boundary Actor which exhibited change:* Nhamaonha Community

b. *What was the change in the Boundary Actor behaviour, relationships, activities or actions,:* The community collectively decided to form a Community Council for Natural Resource (CGRN). This decision represented a change in the way that decisions are made about access to and use of the community's natural resources including production of a Participatory Rural Development Assessment, land use map, a zoning sketch, election and training of CGRN and Fiscal Committee—a process of strengthening of community governance of natural resources.

c. *When did the boundary actor make the change:* June-July, 2010

d. *Where did the change take place:* Nhamaonha community

e. *Significance of the Outcome:* Contributes to achieving Outcome Challenge 2

In the Nhamaonha community example of a mapped outcome, the evaluation team identified what Caritas, the Service Provider did to influence the outcome:

What did Caritas do?	When?	Where?
a. Assisted community with preparing a Land Use Map and a Zoning Map	b. June, 2010	c. Nhamaonha Community
d. Educated community members in the structure and functions of the CGRN and Fiscal Committee	e. June 2010	f. Nhamaonha
g. Assisted with the selection and training of the community's resource fiscal agents.	h. June 2010	i. Nhamaonha

The evaluation field team also investigated the contributions of other boundary actors to the outcome:

Which other B.A.s contributed?	What each did?	When?	Where?
a. Regulo Chibata (traditional leader)	b. Supported the formation and training of the CGRN and helped define its relations with the Regulo	c. June 2010	d. Nhamaonha
e. Cadastral Technician in Manica	f. Did the geo-referencing and sketch mapping of community land boundaries and uses	g. June, 2010	h. Nhamaonha
District Service for Economic Activities (SDAE)	j. Supported the zoning of community land to identify areas of actual and potential agricultural and cattle raising uses of community	k. June 2010	l. Nhamaonha

The evaluation refers to these broad changes as **Outcome Challenges** because they describe higher level project goals derived from an implicit Theory of Change and from iTC practice which “challenge” the iTC to help bring about these changes<sup>23</sup>. An outcome is a specific change in the behavior/relations of a social actor as influenced by the program; an outcome occurs after a program carries out activities. An outcome challenge is a theoretical expectation about a future desired situation. The OME used outcome challenges to calibrate the significance of each specific outcome.

The following table summarizes six initial Outcome Challenges derived from the ToC, plus OCs 7 and 8 which come from consultations with iTC and SP staff, and two additional ones, OCs 9 and 10 derived from initial evaluation field work. The ten OCs, which the evaluation team used to judge the significance of the specific outcomes observed, are:

Preparation of community capacity for land administration:

- OC1 Greater security of community land rights through boundary delineation
- OC2 Improved management of community natural resources
- OC3 Land conflicts resolved

Preparation of association capacity for land management:

- OC4 Organization of Associations developed
- OC5 Greater security of Association land rights through boundary demarcation

Investments made—by internal and external investors

- OC6 Investments initiated

Capacities of iTC Service Providers:

- OC7 Service Providers develop effectively
- OC8 Objectives of government authorities, technicians and other BAs align with iTC objectives

<sup>23</sup> Sarah Earl, et al, op.cit., p. 47

Empowerment:

- OC9 Effective participation of women as well as men in management of local organizations
- OC10 Organizational alliances constructed

## Data Gathering Used and its Extension for Policy Analysis

After an initial training of two days in Nampula which included the design and testing of a form for recording information about mapped outcomes, the evaluation team divided into three field teams to map outcomes, one in Cabo Delgado, a second in Manica and a third in Zambezia<sup>24</sup>.

The mapping of outcomes, their verifications through consultations with service providers and community members, and the conduct of household surveys were begun on May 13, 2013 and the field work was completed on June 7, 2013, about 3.5 weeks.

The study methodology used in this evaluation consisted of four steps:

1. Design of the outcome identification to generate findings that meet the needs of its primary intended users of the evaluation study—the iTC fund managers, service providers and stakeholders in the iTC (donors and governmental agencies).

The evaluation team reviewed publications and interviewed people who had contributed to the definitions of the national Land Policy and subsequent Land Laws and regulations

The team also discussed the iTC with people involved with past and present NGO attempts to implement the Land Law as well as people who had been intimately involved with the implementation of the iTC.

The evaluation team discussed the provisional ToC along with a description of the OM methodology with the KPMG coordination team in Manica (responsible for management of funds from the six European donors (the G6), following a preliminary discussion of basic concepts with the KPMG coordination team in Nampula (responsible for the management of funds from the MCC-Mozambique Compact).

These consultations fed into refinements of the provisional Theory of Change as well as into the iTC understanding of the evaluation.

These design elements were incorporated into the Inception Report, completed in March, 2013<sup>25</sup>.

2. Review existing information to identify and draft outcomes.

In each of the three provinces selected for field work, the evaluators reviewed KPMG data to select samples representative of service provider contracts to identify specific communities and associations to visit. In some instances the identification of communities was difficult, since the traditional leaders were organized hierarchically with multiple localities organized and represented by different traditional leaders under the overall coordination of a higher level traditional leader. The community definitions derived by the service providers were used in most cases to define sites for confirmation of iTC field report data and for estimates of investments following iTC activities. The evaluation team selected 52 sites in the three Provinces, communities and associations, to visit and confirm outcomes or add new outcomes<sup>26</sup>.

The field teams then consulted the iTC field reports files, and got the SP field reports from the past 6 years for the sampled sites, and extracted the outcomes claimed by the iTC service providers—what significant changes did the iTC service providers claim to have influenced?

---

<sup>24</sup> In addition to mapping outcomes, each field team was asked to oversee household surveys (55 sampled households in Manica, 70 in Cabo Delgado and 74 in Zambezia) to establish baseline data for the expected follow on phases of the iTC. These data were not used in the OME data.

<sup>25</sup> GRM/QED, May, 2013, *Evaluation of the Mozambique Community Land Use Fund—Final Inception Report*, Department for International Development, Mozambique.

<sup>26</sup> In Manica Province, the iTC data permitted the comparison of the samples of 6 communities and 6 associations with the 18 communities and 51 associations with which the iTC worked since 2006 in terms of the mean number of beneficiaries and the average areas delineated or demarcated. Statistically there were no significant differences in the means of the samples on these variables in comparison with the means of the sites not in the sample, indicating that the sampled sites were roughly equivalent to those not in the samples.



In this study, due to limited time for reviewing each provisional outcome with KPMG and service provider staff, only those which were claimed but lacked supporting evidence in the reports were further investigated in detail. Each of the team members worked more or less independently in the three Provinces selected for the evaluation study to formulate and verify outcomes with community and association members. We did not discuss all outcomes with the Service Provider that did the work, just the ones which appeared doubtful after input from community members.

3. Verify with independent, knowledgeable and authoritative third parties the veracity and accuracy of a credible portion of the outcomes.

Following the office reviews of project and service provider reports, the OM evaluators and translators (most rural community members function through local languages and are not fluent in Portuguese) visited the 52 sampled sites, and interviewed community and association members, community and association leaders and local government officials and business people to verify the claimed outcomes and to find significant outcomes which had not been claimed in the field reports. This report analysis exercise generated 171 provisional outcomes demonstrating changes in social actors' behaviors/relationships with plausible influence of the iTC, of which 15 could not be verified by the local informants. The resulting 156 outcomes form an empirical basis for the evaluation.

These local interviews were conducted without the presence of iTC or Service Provider staff.

In any social situation, reality is usually much more complex than the theoretical expectations, as was the case in most of the 52 sites visited. Each outcome identified was, by definition, unique—a specific change in behavior or relationship at a specific time and at a specific place. In order to estimate the theoretical significance of each outcome, the study team identified at least one of the Outcome Challenges reflected in each specific outcome. Some outcomes were relevant to more than one Outcome Challenge, so that from the 156 valid outcomes identified in the 52 sites, there were 207 outcome links with Outcome Challenges.

## **Examples of Outcomes**

### **Irrigators Association of Rotanda:**

1. *In June 2012 the members of the Associacao dos Irrigantes de Rotanda, an association of associations as a first step to get a single DUAT containing land of the four associations decided to create and legalize the AIR. This decision represented a major change in organizational structure of Rotanda's associations of agricultural producers. The AIR provides a mechanism for advancing interests of the member Associations and their individual members, and those of neighboring Associations within the Rotanda Administrative Post.*
2. *In June 2012, the Associacao dos Irrigantes de Rotanda (AIR) decided to apply for a DUAT for 216 hectares covering the irrigated lands of four associations. The Association's main objective is to secure these highly productive, well located and irrigated lands from being taken by others, thereby securing income derived from cultivation for the families working these lands, and encouraging the investment of time and money in the canal system and in the productivity of the land.*
3. *In June 2012, Community Council of Rotanda including Regulo decided to approve the AIR application for a DUAT*
4. *In June 2012, the Local government of Rotanda decided to invest in the AIR, through construction of meeting place and transferring it to AIR*

### **Gunhe Community:**

5. *In August 2011, the Gunhe community changed from opposing the creation of a CGRN to approving community request to the Administrative Post to legalize a CGRN.*
6. *In May 2011, the CGRN established a policy for community members to monitor loggers who graze cattle in the Gunhe community.*
7. *In May 2013, the Gunhe CGRN appointed forest rangers to control the illegal logging of Gunhe community lands.*

### **Community of Nhamaonha:**

8. *In June-July 2010, the Nhamaonha community agreed upon an Agenda for Development for the community.*
9. *In June 2010, the Nhamaonha Community's elections of CGRN and Fiscal Committee have been done democratically, involving men and women to select their leaders.*
10. *In June 2010, the CGRN established its alliance with the Nhamaonha community's Regulo for monitoring resource use and for negotiating with potential investors, to select those who agree to assure meaningful contributions to the community*
11. *January-June 2010, the iTC has assisted Caritas in the training of Nhamaonha community facilitators for improving the Caritas abilities to mobilize community*

#### **Brothers United Association:**

12. *In January 2010, the Association Irmaos Unidos leaders agreed with local government and ORAM to proceed with the legalization of existing Associations including Irmaos Unidos of Gondola.*
13. *In February 2010, the Association Irmaos Unidos decided to apply to the SPGC for a DUAT for approximately 7 hectares.*
14. *In May-June 2010, neighboring land holders in the Gondola District align themselves with Irmaos Unidos through not objecting to demarcation of boundaries as required for the Association to receive a DUAT for the 7.3 hectares identified for Association management.*
15. *In May-June 2010 the Macate local government aligns with the Association and ORAM through vetting DUAT for Irmaos Unidos Assn.*
16. *In June-August 2010, the SPGC in Chimoio agreed to conduct a demarcation of the land requested and the preparation of a provisional DUAT for Irmaos Unidos Association, with the possibility of a permanent DUAT if the Association completes its exploration plan within five years.*
17. *In June-August 2010, the Irmaos Unidos Association encourages women and men to be involved in the management of the association.*
18. *In January 2010 the Irmaos Unidos Association renewed its commitment to and involvement in the Comite de Desenvolvimento de Macate-Sundaz, along with other associations of the P.A.*

#### **Nhauranga Community**

19. *In March 2008, Nhauranga Community leaders reached agreement with ORAM to seek a Certificate from SPGC*
20. *In November 2008, the Nhauranga Community agreed with three neighboring communities on boundaries between them. [28]*
21. *In November 2008, the Nhauranga Community defined the community land area for their management of its natural resources. [29]*
22. *In November 2008 the Nhauranga Community mediated and resolved four conflicts over community boundaries during the process of delimiting the boundaries of the Community*
23. *In October 2008 the Nhauranga Community established the CGRN. [31]*
24. *In 2008, Nhauranga Community reduced uncontrolled burning of trees, brush. [32]*
25. *In 2008, the Nhauranga Community encouraged women's participation in the CGRN through women's occupation of five of the seven CGRN positions.*

Before presenting the data on outcomes and investments, another aspect of the retrospective evaluation is important to note, namely that the study involved mental "time travel".

Time 1 and Time 2: The team consulted service provider and KPMG reports and staff with experience in the sampled sites, and provisionally identified boundary actor outcomes and the SP activities which contributed to those outcomes.

Time 1 refers to the period during which the SP was working with the communities or associations. Some of the service providers were working with communities as early as 2006.

Time 2 refers to the moment in time when the community or association changed behaviours or relationships, to secure rights to the land and to strengthen land governance capacities. Some of the reports described service provider activities and changes in boundary actor behaviours/relationships which had occurred as early as 2008, although most mapped outcomes come from 2010-2012.

The claims of the service providers in their reports are in the main that their activities in Time 1 helped bring about the changes in communities/associations behaviours or relationships in Time 2. The evaluation team attempted to verify these claims through consultations with the service providers, community members, and local government heads. The team placed the responsibility of the verification of SP claims on the evaluation team, which interviewed community members and local government heads in personal visits over a period of one or two days per site. There simply was not sufficient time planned and budgeted for more in-depth conversations about the mapped outcomes pertaining to the key boundary actors.

Time 3: During the evaluation team site visits in 2013, community members and leaders were asked about any new investments in productive or marketing infrastructure, not the yearly inputs into production or marketing, after the Service Providers completed their activities and after mapped outcomes had occurred and which had potentially influenced subsequent investment decisions. Time 3 was the period in which investments were logically carried out, some only partially. Local people were questioned as to whether changes in communities' or associations' tenure security and management capabilities influenced specific investments by local community investors and by external investors.

Establishing causal influences relies on what local people say are the iTC activities and their plausible causal influences, established at each of the temporal points of the team's mental "time travel". The potential biases in the reports at Time 1 which could tend toward claiming outcomes illustrating iTC "success" are counteracted to some extent by the KPMG monitoring of service providers to justify payment for contracted services rendered. Such potential biases are also counteracted by checking outcomes through conversations with community members and local government leaders during the field visits. Slightly more than 9% of the provisional Time 1 outcomes (15 out of 171) were declared to be invalid after this field checking.

As to the causal claims that Time 3 investments have been facilitated by Time 1 activities and Time 2 outcomes, biases are of course possible. However, the potential overestimation of the positive relationship is counteracted by the almost universal tendency of local people to take advantage of outside visitors to complain about their poor conditions and the ineffectiveness of government and NGO projects to improve these conditions. With this same logic, it seems likely for there to be an underestimation of causal influences, which is partially negated by conducting the conversations in groups so that differences of opinions can emerge, (including, where possible separate study team discussions with women, or at very least, specifically encouraging women to participate in discussions where both men and women were present).

This substantiation by OME of activities and outcomes through direct beneficiary interviews departs from the OH substantiation through detailed discussions with people who are knowledgeable of the sites and interventions, but who are independent of the implementing entity. The time that the team devoted to the site visits was limited usually to a few hours in a single visit to a community or association. The quality of information elicited varied without the time for the local people to understand the reasons for the evaluation study and to be motivated to respond truthfully to the leading questions from the OME team. There is more likelihood of the team inaccurately or insufficiently judging the reality of claimed outcomes and the causal linking of iTC activities with those outcomes than would probably be the case if the substantiation conversations were deeper, over a longer period of time, and involved multiple informants with special knowledge.

The evaluation team decided that a "counterfactual" data gathering was not needed, which could have been the study of capital or technological investments in communities where the iTC did not work but would be similar to iTC assisted communities. Establishing the influence of the iTC program in the evaluation came from the conclusions of community members and local government heads who lived the iTC experience and who knew people who did the investing. Establishing an equivalent "control group" to compare with the iTC communities for this purpose was not needed. The connection between iTC activities and investments is established by the expressed opinions of local people about whether or not there was a causal connection.

Asking people to verify causal influences contrasts with the statistical approach to establishing causal influences, as shown in the World Bank's discussion of impact evaluation:

*Impact evaluation asks about the difference between what happened with the program and what would have happened without it (referred to as the counterfactual). For example, "Are children staying in primary school and learning more than they would have without this particular curriculum or teaching innovation?" This difference is the impact of the program<sup>27</sup>.*

Another issue is whether the sample of iTC sites from which the evaluation collected outcomes is similar to those iTC sites not sampled. In Manica Province, the iTC data permitted the comparison of the samples of 6 communities and 6 associations with the 18 communities and 51 associations with which the iTC worked since 2006 in terms of the mean number of beneficiaries and the average areas delineated or demarcated. Statistically there were no significant differences<sup>28</sup> in the means of the samples on these variables in comparison with the means of the sites not in the sample, indicating that the sampled sites were roughly equivalent to those not in the samples.

4. Analyse and interpret the findings in order to answer in the most useful way possible the actionable mapping questions that have guided the evaluation.

The evaluation questions evolved into the six initial Outcome Challenges, and then solidified into the 10 OCs used to judge the significance of each outcome.

The evaluation team coded each outcome into a data base, prepared a spreadsheet (outcomes as rows, and columns containing characteristics of the outcomes--variables), and created a SPSS system file. The unit of analysis initially was the outcome, with a total of 151 confirmed such outcomes.

In identifying the main outcomes from a sample of sites in the three Provinces, we began our harvest by reading individual project reports, which provisionally had to show some progress toward at least one of the 10 Outcome Challenges. Subsequent field visits to the sites and interviews with local leaders and community members as well as with local government officials and technicians provided evidence as to the validity of each outcome and its significance in showing progress towards the Outcome Challenges.

For several outcomes harvested provisionally from the project reports, the evidence from the field visits was ambiguous as to their validity, resulting in their exclusion from the data base.<sup>29</sup> Table 1 shows the number of Outcome Challenges to which the 156 valid outcomes are linked, as well as the number of provisional outcomes that did not have strong evidence in the field of actually having occurred. Since it is possible that some outcomes are linked to more than one OC, there are a total of 220 OCs cited in the 156 valid outcomes.

---

<sup>27</sup> Savedoff, William D., Ruth Levine and Nancy Birdsall (2006) "When Will We Ever Learn?", Washington D.C. Center for Global Development, p. 12

<sup>28</sup> Simple t tests comparing the mean areas and mean number of members for the samples of communities and associations indicated no significant differences at the .05 level.

<sup>29</sup> A total of 242 OC citations (pertaining to one or two of the 10 OCs) were contained in the outcomes harvested. Of those, 22 OC citations from 15 outcomes were judged to have ambiguous evidence, or about 9%, about their validity. This does not mean that they were not in fact valid, but the fieldwork time was not adequate to clarify the sources of ambiguity.

Table 1: Outcomes Harvested from iTC Projects in Manica, Zambézia and Cabo Delgado (2013)

iTC Focus Area	Relevant OCs	Outcomes Harvested	Focus Outcome Subtotal	Area	% of Total OH Citations
<b>1. Preparation of Communities</b>	1	25			
	2	40	87		39.5%
	3	22			
<b>2. Preparation of Associations</b>	4	26			
	5	33	59		26.8%
<b>3. Investments directly influenced by iTC</b>	6	19	19		8.6%
<b>4. iTC Capacities</b>	7	9			
	8	12	21		9.5%
<b>5. Empowerment</b>	9	7			
	10	27	34		15.5%
<b>TOTAL</b>		<b>220*</b>	<b>220</b>		<b>100%</b>

\*Some outcomes pertained to two OCs, thus there are 220 OCs cited in the 156 total valid outcomes harvested.

Of the valid outcomes harvested, nearly 40% attested to changes in the behavior and/or relationships of key Boundary Actors contributing to the preparation of communities for investments. Another 27% of the valid OC citations provided evidence of progress toward the preparation of Associations for investments.

The third largest number of OCs cited (almost 16%) had to do with the empowerment of men and women in the management of CGRNs and Associations as well as empowerment of the communities and associations for increasing their influence in local markets and in regional policy discussions. Efforts by the iTC to improve its effectiveness through upgrading the capacities of its Service Providers and through building stronger alliances with Boundary Actors yielded fewer examples of progress toward OCs 7 and 8—just about 10% of the cited OCs referred to these OCs.

Efforts by the iTC to improve its effectiveness through upgrading the capacities of its Service Providers and through building stronger alliances with Boundary Actors yielded fewer examples of progress toward OCs 7 and 8—just about 10% of the cited OCs referred to these OCs.

The OC with the fewest citations has to do with direct iTC influence on investments during the time that the SPs were working with the communities. This result is to be expected at this point in the evolution of the iTC programme, since the main focus had been on preparing communities and associations for stimulating investments, and not on encouraging specific investments.

Many investments could be expected to occur after the intervention phase which establishes preconditions for viable investment had ended. The evaluation team's visit to communities came usually months and at times years after the Service Providers had worked with the communities (or associations) to produce the outcomes at Time 2 as they reported in their field reports. It was during this field visit (Time 3) that the evaluation team asked local informants about new investments which could plausibly be influenced by Service Provider activities and outcomes made in previous months.

#### Importance of other Boundary Actors for the iTC

The fund manager (KPMG) and the contracted service providers directed their efforts at communities and associations, but they were not alone in developing the capacities of communities and associations. Table 2 shows that in practically all outcomes, iTC had the assistance of at least one other Boundary Actor. Local Government units contributed to 60% of the outcomes, followed by the

Traditional Leaders, Neighboring Communities, Cadastral Services, the SPAE, and finally NGOs other than the Service Provider involved in the iTC assisted outcomes.

Table 2: Boundary Actors Involved in Producing Outcomes

Partner Boundary Actors	Number of outcomes	Percentage of total outcomes
At least one other BA	160	93.6%
Local Government Units	102	59.6
Traditional Leaders	78	45.6
Neighbouring communities	73	42.7
Cadastral Service	67	39.2
Provincial Ag and Econ Dev (SPAЕ)	64	37.4
Other NGO than SP	58	33.9

The evaluation report<sup>30</sup>, and a subsequent research paper<sup>31</sup> contain the main findings of the study.

What about the plausible linkages of iTC produced outcomes with subsequent investments made at times months after the Service Providers did their social preparation and boundary definition work? Our analysis now shifts from outcomes to sites where iTC’s service providers worked helping to produce the reported outcomes.

There were 35 study sites (out of 52 sites studied) or just over 67% of iTC sites which local informants identified as having experienced some new investment in income producing enterprises, usually agricultural ones.

Community and association members interviewed in these 35 sites reported that the iTC influenced outcomes contributed to new investments made in their communities and associations after the iTC completed its work in the sites. So, there is plausible reason to believe that the iTC Service Providers contributed to the investments which people report.

What kinds of investments have been made?

Figure 1 shows the data.

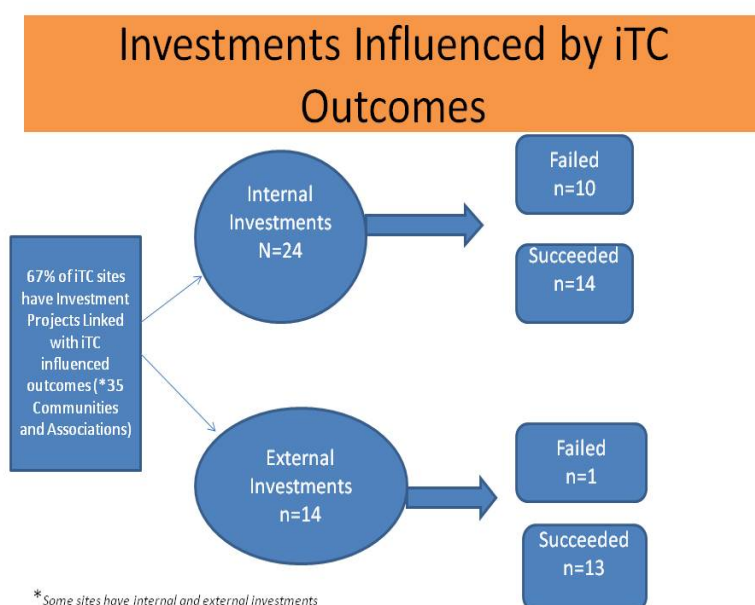


Figure 1: Types of Investments in 35 sites (in some sites there are internal and external investments)

<sup>30</sup> Effective Development Group, 2014, Evaluation of the Community Land Use Fund: Final Report

<sup>31</sup> Stanfield, David and Andre Calengo, *Moving Beyond Capitalism: The Mozambique Community Land Initiative*, paper presented to the Moving Beyond Capitalism Conference, in San Miguel de Allende, Mexico, July 29, 2014-August 3, 2014



The number of internal community investments in these 35 sites exceeded the number of investments coming from external sources. Forty-six percent (46%) of the sites have internal investments which have occurred since the iTC did its community preparation work (including boundary delineation in communities and boundary demarcation in associations). In the 35 sampled communities and associations just 27% have experienced investment projects led by outside investors subsequent to the iTC activities at the sites.

As would be expected, not all investment projects have succeeded. Overall, just over 50% of all the iTC communities and associations have investment projects which have had some degree of success, at least as of mid-2013. A higher proportion of external investment projects succeeded than the internal ones.

The frequently encountered opinion that the iTC has not encouraged investments is probably not correct, at least as shown in the evaluation data. In over 50% of the sampled sites where iTC has worked, some sort of investment project had occurred which local people have judged to be successful.

Some people might argue that the data are consistent with the that the iTC interventions did influence investments, but the analysis does not prove such influences, since there is no “counterfactual” comparison. That is, investments may be occurring in many rural communities, those where iTC worked with other boundary actors and those where iTC has not worked, due to factors other than the work of the iTC.

Most communities in Mozambique have received some kind of outside assistance and therefore “pure” counterfactual communities which fit a *ceteris paribus* assumption would be hard to find.

Through the evaluation study’s method of data gathering, there is evidence from local informants and from the evaluation teams’ own observations that the outcomes were influenced by iTC interventions. Similarly there is evidence from the verified outcomes that these outcomes influenced subsequent private investment decisions. So, the lack of a control group which did not have iTC interventions is not a devastating criticism.

This evaluation study was not intended to improve the operations of the iTC. It was intended to be as input into the design of a new Mozambican Foundation which would link with governmental and NGO programs to more effectively carry out the expectations of the Land Law and related legislation.

In the months since the submission of the evaluation report, the evaluation has made direct and indirect contributions to the design of the new iTC-Foundation:

Direct contributions:

1. On the invitation of the leaders of the new iTC-F, in July, 2014, Ricardo Wilson-Grau conducted a training program for 12 future employees of the iTC-F and cooperating institutions in the concepts and procedures of Outcome Harvesting — an approach inspired by Outcome Mapping and informed by Utilization-Focused Evaluation — for incorporation into the monitoring and evaluation efforts of the Foundation.
2. Those trainees subsequently applied OH to the analysis of reports from completed projects, and produced a greater understanding of the contributions of various entities to the program outputs.
3. For the preparation of the three year Strategic Plan of the iTC-F, the OME evaluation contributed to the formulation of a ToC and to the formulation of the donor required Logical Framework goals, outcomes and outputs in a way that would permit the use of the evaluation of the iTC-F’s program.
4. For the formulation of the programmatic pillars of the new iTC-F the OME finding about the central importance of several governmental agencies and traditional local leaders to the iTC claimed outcomes helped to define the funded “bridging actions” of the iTC-F with the SPGC, SDAE, local government heads, and traditional leaders, particularly through the linking of iTC-F plans with District Plans.
5. The “empowerment” outcomes, particularly the linking of communities in some sort of federation, indicated a path for improving the sustainability of the changes influenced

by the iTC in communities and were incorporated into the operational pillars of the new iTC-F.

Indirect contributions:

The OME method of reconstructing the history of each outcome to comprehend what factors were important led the evaluation team to unexpected findings:

1. The iTC decision to finance the formation and registration of associations as well as the demarcation of association land led to outcomes, but mostly the addition of DUATs for the protection of valuable community lands when there were in fact slight if any threats of outside grabbing of these lands. Manufacturing a single DUAT to include various family holdings is a legal wall protecting these individual holdings, but future transactions may be complicated by the individual holdings being embedded in a collective title. The future iTC-F will focus on community social preparation and boundary delimitation, with assistance to associations only on a shared financing basis, indicating local association member interest in association land titling.
2. The administration of community lands and natural resources depends in part on the involvement of heads of Administrative Posts, the lowest level of public administration. The evaluation teams' visits to these Posts showed that there was no institutional memory of community land delimitation and Council formation, no community maps, no community files nor cabinets in which to store them. Limited support for equipping of these Posts is incorporated into the Strategic Plan of the iTC-F.

#### **Weaknesses of the Evaluation and How to Mitigate Them**

1. Verification of the accuracy of outcomes obtained in documents

We have discussed the less than desirable verification of each outcome mapped—whether claimed activities were carried out, whether changes in boundary actor behavior or relationships occurred (and lasted once they happened), and whether the first influenced the second. The outcomes mapped and validated may be overly affected by the biases of the researchers. In future applications of OME in which substantiation of outcomes is a formal step, time and money and training of field evaluators must be substantially more than what was possible in the OME as applied to the iTC evaluation.

2. Selection of sites

Behaviors or relationships of boundary actors occur in specific places. Since it is usually the case that not all places can be studied, reliance is on a sample of places. But even the definition of the place is at times controversial, as in the case of many “communities” in Mozambique. The evaluation team relied on iTC definition of community and association sites.

The selection of sites for the field study was not simple nor random. In the Manica case, the evaluation team worked with the iTC staff to sample sites where iTC had concluded its work to represent:

- 1) sites which were the focus of work by the SPs from 2007-2012,
- 2) sites in different geographic areas of the Province where iTC was working,
- 3) sites representing the two main types of site/interventions--communities for community land delimitation and associations for association land titling-DUAT with demarcations of land claimed by the associations.
- 4) sites from the Service Providers who did the most sites/interventions.

These criteria overlapped, happily, since there was time in the Manica part of the evaluation study only to focus on 12 sites/interventions out of 74 possible sites/interventions which had been concluded by the end of 2012 (there were 26 site/interventions still in process). A 17% sample

of the concluded interventions seems small, but the data show that the sampled sites are not statistically different from the non-sampled sites.

### 3. Adequacy of Mapped Outcomes

Since most of the mapped outcomes came from a review of SP and iTC reports, one question is whether these reports claim mostly positive outcomes, instances where SPs claimed to have influenced changes that the contracts called for or implied? As noted above, this potential weakness is at least partially mitigated through careful monitoring of the SPs by the iTC prior to paying for services rendered to confirm that such services were actually carried out. Another mitigating factor was the site visit to confirm the outcomes and to identify others that may not have been in the SPs reports. This field confirmation yielded 9% of the provisionally defined outcomes being found invalid, not supported by field evidence, and were eliminated from the analysis.

However, data was not available for testing the equivalence of sampled and un-sampled sites in Zambezia and Cabo Delgado Provinces. In future studies of this type substantially more time and effort should be devoted to the description of program “places”.

### 4. Definition of outcomes

The evaluation team identified "outcomes" by reviewing project reports done by Service Providers, and by looking for changes in the behaviors and relationships of the Boundary Actors that were the focus of the SPs during their very short periods of intervention. This mapping the team did is somewhat subjective, and the SP reports tend to be voluminous, which required that the evaluators spend a lot of time digging into the reports and checking with the authors. Furthermore, due to time limitations, the team had to call a halt to this process and limited themselves to producing 3-8 of the more salient outcomes per site where the SP intervened. More outcomes would likely have been identified with more time for reviewing SP reports.

The evaluators did verify each dubious outcome through interviews with local community/association members and directors, and with local government officials and with other contributing Boundary Actors. But the evaluators had to ask questions about accuracy, and could not devote the time to let the informants/respondents present their own formulations of what they considered the most important changes in the communities and associations.

In future work of this type, where evaluators work independently of each other for a period of time, training is crucial. A useful measure would be the independent extraction of outcomes from the same report by different evaluators followed by a discussion of the differences among evaluators, and a reporting of divergences where they cannot be overcome.

For the standard use of OM for evaluation of a project which is directed to answering the Evaluation Questions for the client organization, the number and importance of mapped outcomes depends on whether the evaluator answers the EQs adequately enough to be of use to the client. The objective is not to test hypotheses, just for a client to consider the evaluation useful. In this study, where the Outcome Challenges became the evaluation questions, the study evolved more toward testing hypotheses.