

NICARAGUA PROPERTY PROJECT PERFORMANCE EVALUATION

MAY 18, 2012

Prepared by:

Michael Ketover

DISCLAIMER

The author's views expressed in this publication do not necessarily reflect the views of the Millennium Challenge Corporation or the United States Government.

CONTENTS

Executive Summary	i
I. Background and Project Description	1
A. Introduction	1
B. Project Activities	1
C. Background	1
D. Program Logic	5
E. Intended Benefits	6
F. Projected Results	6
II. Methodology and Data	7
A. Evaluation Strategy	7
B. Data	8
III. Findings and Analysis	10
A. Program Logic	10
B. Economic Benefits	12
C. Implementation Factors	13
D. Range of Impacts	14
E. Updated Results	17
IV. Lessons Learned	19
V. Recommendations	19
VI. Conclusions	19
Annex A - People Consulted	21
Annex B - Literature and Data Review	22
Annex C - Follow-Up Survey Questions	24
Annex D - Nagarote Pilot Program Table of Costs	25

EXECUTIVE SUMMARY

Background: In July 2005, the Millennium Challenge Corporation signed a five-year, \$175 million Compact with the Government of Nicaragua to reduce transportation costs, improve access to markets, strengthen property rights, increase investments, and raise incomes for farms and rural businesses. The MCC Compact in Nicaragua entered into force in May 2006, formally initiating the 5-year timeline for project implementation. Conditions leading up to, during, and following municipal elections of November 2008 were inconsistent with MCC's eligibility criteria. In June 2009, the MCC Board terminated a portion of MCC's compact, reducing compact funding from \$175 million to \$113.5 million.

The Property Regularization Project began in May 2006 and was suspended in November 2008. The Project included 6 activities for a total of \$26.4 million. The Project expended \$7.2 million prior to termination. The objective of the Property Regularization Project was to increase investment and income by strengthening property rights in Leon. As part of the Compact between the Millennium Challenge Corporation and the Government of Nicaragua, the objectives were to: (i) increase the level and value of investment on land; (ii) increase access to land; (iii) reduce the costs associated with acquiring land user rights; and (iv) resolve and prevent conflicts over land.

Evaluation Strategy: The focus of this performance evaluation was whether or not the Project's program logic was sound and successful and had the intended benefits related to generating economic growth. The evaluation sought to determine if the Project did what it was designed to do, and whether it had unintended benefits. This Performance Evaluation employed qualitative methods to assess the degree to which activities were undertaken and implemented; the achievement of outputs, outcomes and impacts; and prospects for sustainability.

Key Findings:

- 1) The overall program logic was sound but the implementation period was too short to adequately assess the validity of the logic's assumptions.
- 2) Despite the brief implementation period and challenging political and land regularization contexts, MCC funds contributed to achievement of certain Project objectives.
- 3) The Government of Nicaragua has adopted the methodology for systematic land tenure regularization known as Direct Administration for its property regularization efforts, an approach that MCA-Nicaragua refined and promoted in the Department of León.
- 4) Property regularization activities in Leon are now funded by loans and grants from the World Bank and the Government of Venezuela, respectively.
- 5) Cost effectiveness cannot be determined due to the abbreviated implementation period.

The complete findings with analysis can be found in Section III.

Lessons Learned:

- MCA-N took advantage of lessons learned and best practices from previous land regularization efforts in Nicaragua to develop and refine the successful methodology used for this Project.

- In the urban areas of León, the relationship of titled land to increased household incomes and consumption patterns was not readily apparent in the short implementation period.

Recommendations:

Assumptions:

- Re-examine the validity of three Project assumptions based on other relevant MCC land regularization experiences: (1) that land titling increases investment on parcels, raising income in a range of 2.5 to 3%; (2) that land titling reduces property transaction costs, creating greater savings and income; and (3) that greater land tenure security encourages environmental protection.

Monitoring:

- Determine whether monitoring two Project outcome indicators (reductions in time and reductions in costs for land-related transactions) produces meaningful data or accurately reflects the time-cost realities for land transactions.
- Consider monitoring the category of investments made by beneficiaries, in addition to the values, on urban and rural plots to provide data as to whether the investments relate to raising income.
 - (a) Indicator: the category of investment (i.e. new loans or credit, new construction, repairs, etc.)
 - (b) Indicator: average value of investment, per category (rural area)
 - (c) Indicator: average value of investment, per category (urban area)

Conclusions

With the backdrop of a complex land tenure situation in Nicaragua and upcoming national elections, this Project produced several accomplishments in a short time. The logic of the six planned Project activities was sound, practical, and based on experiences from previous land regularization efforts, but the 30-month Project implementation period was too short to fully implement and rigorously assess Project results.

One important Project result was that the Government of Nicaragua adopted the methodology for systematic land tenure regularization that MCA-Nicaragua refined and promoted in the Department of León, a direct administration approach that builds capacity, especially at the municipal level. Moreover, the World Bank and the Government of Venezuela now fund property regularization activities in León using this approach. Overall, while modernization efforts have had mixed results, some technical aspects such as surveying, mapping, and issuing titles have progressed in León. Finally, donor coordination was strong, especially the Project's efforts to persuade the World Bank to expand its property regularization activities into León and continue MCA-Nicaragua's work.

I. BACKGROUND AND PROJECT DESCRIPTION



A. Introduction:

In July 2005, the Millennium Challenge Corporation signed a five-year, \$175 million Compact with the Government of Nicaragua to reduce transportation costs, improve access to markets, strengthen property rights, increase investments, and raise incomes for farms and rural businesses. The MCC Compact in Nicaragua entered into force in May 2006, formally initiating the 5-year timeline for project implementation.

The Property Regularization Project began in May 2006 and was suspended in November 2008. The MCC Board terminated this Project in June 2009 for reasons unrelated to implementation performance.¹ The Property Regularization Project originally included 6 activities for a total of \$26.4 million. The Project expended \$7.2 million prior to termination.

The objective of the Property Regularization Project was to increase investment and income by strengthening property rights in León. As part of the Compact between the Millennium Challenge Corporation and the Government of Nicaragua, the stated objectives related to property regularization were to: (i) increase the level and value of investment on land; (ii) increase access to land; (iii) reduce the costs associated with acquiring land user rights; and (iv) resolve and prevent conflicts over land.

B. Project Activities:

The Property Regularization Project included six activities:

1. *Institutional Capacity Building*
2. *Cadastral Mapping*
3. *Land Tenure Regularization*
4. *Database Installation*
5. *Protected Areas Demarcation*
6. *Analysis and Communications*

C. Background: In Nicaragua, a troubled history of land expropriation by the state and use of “land grabs” by groups and individuals has undermined the credibility of the public legal

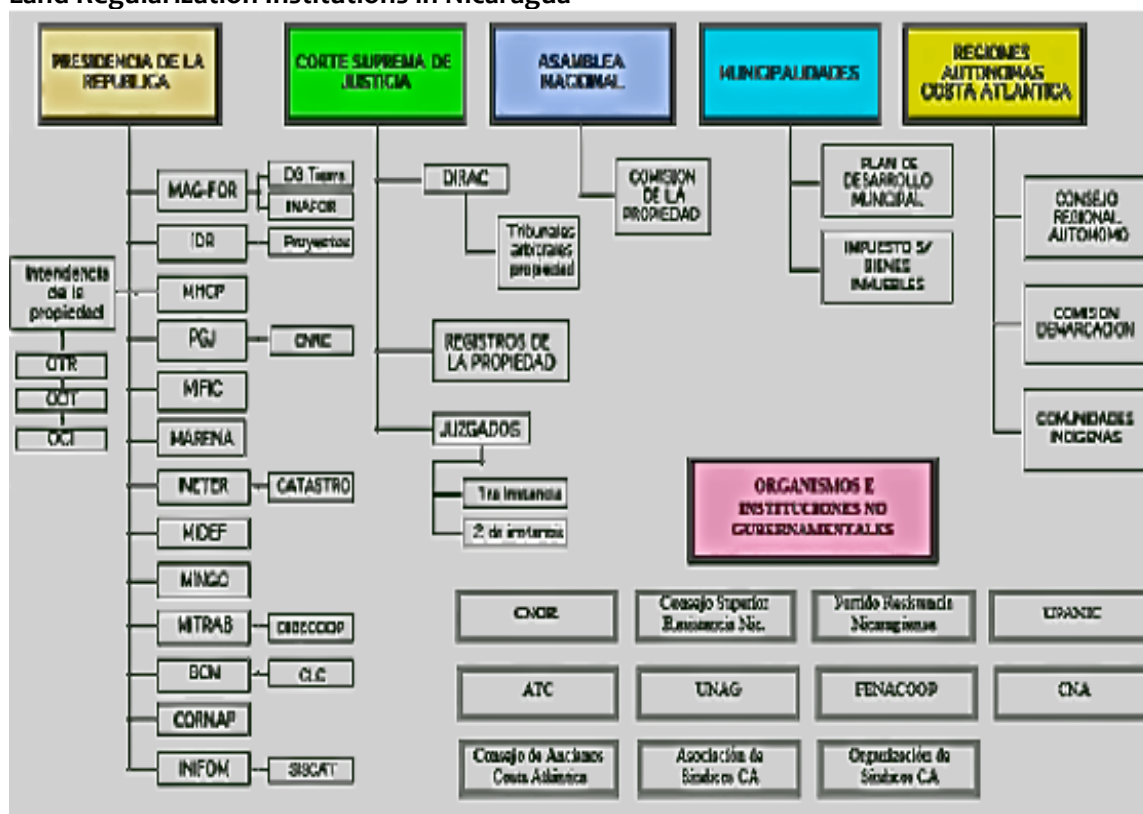
¹ Conditions leading up to, during, and following municipal elections of November 2008 were inconsistent with MCC’s eligibility criteria. In June 2009, the MCC Board terminated a portion of MCC’s compact, reducing compact funding from \$175 million to \$113.5 million.

Due to partial termination, funding was terminated for all activities in the Property Regularization Project and activities in the Transportation Project that were not already under contract, including upgrading a major stretch of the Pacific Corridor highway.

property regime.² During the initial Sandinista period, which lasted from 1979 to 1990, the Government distributed large tracts of land it did not legally own through its version of agrarian reform.³ Distribution of land under agrarian reform, largely to ex-combatants, continued under the Government that held office in 1990-1996. A flood of litigation for restitution ensued.⁴ Since 1992, the Government's efforts have focused on regularizing the situations of beneficiaries from agrarian reform under the Sandinista and subsequent governments. Based on the high level of tenure insecurity on private lands in Nicaragua, the MCC, MCA-Nicaragua, and the Government of Nicaragua agreed to expand the beneficiaries

Figure 1:

Land Regularization Institutions in Nicaragua



Source: World Bank, Nicaragua, 2002

² "Investment and credit effects of land titling and registration: Evidence from Nicaragua," Juan R. de Laiglesia, London School of Economics, 2004.

³ "Agricultural property rights and political change in Nicaragua," Mark Everingham, Latin American Politics and Society, 2001.

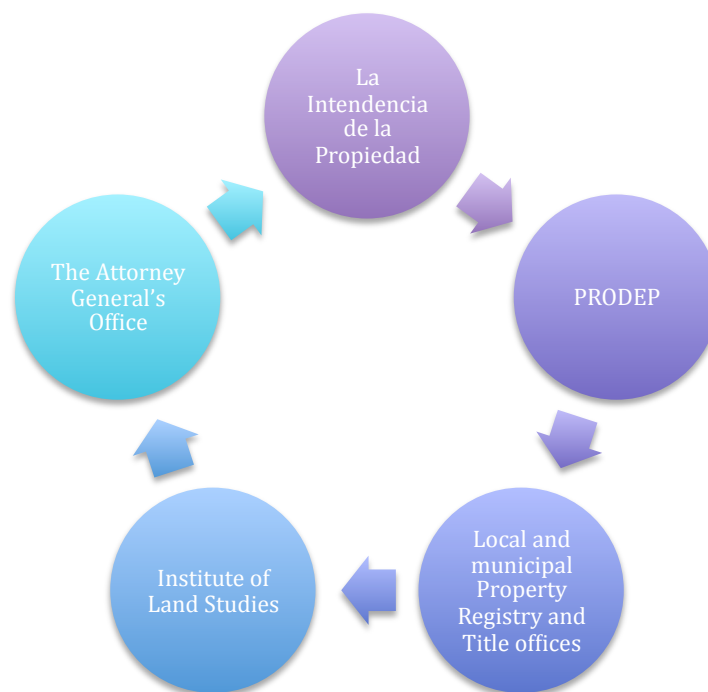
⁴ "Investment and Income Effects of Land Regularization: The Case of Nicaragua," Klaus Deininger and Juan Sebastian Chamorro, World Bank Policy Research Paper, 2002.

of land regularization programs to include the non-reform sector (lands under private land ownership) in the Project.⁵

Land regularization issues in Nicaragua are complex, characterized by the World Bank and the Inter-American Development Bank as perhaps the most complicated in Central America. When the World Bank assessed the institutions involved in land regularization in 2002, it counted over twenty entities involved (see Figure 1). A decade later, the organizational construct is less complicated and many land regularization governmental functions have been consolidated. La Intendencia de la Propiedad, an agency in the Ministry of Finance and Public Credit, oversees and reports on land regularization activities. The Technical Secretariat of PRODEP (Proyecto de Ordenamiento de la Propiedad) provides the technical experience to implement donor programs intending to modernize Nicaragua's land registry and cadastral systems and to regularize land rights.⁶ The Attorney General's Office and the Nicaraguan Institute of Land Studies (Instituto Nicaragüense de Estudios Territoriales/INETER) are charged with the legal processes of regularization and land mapping and cadastre, among others, respectively. Local and municipal Property Registry and Title offices provide required documentation (see Figure 2).

Figure 2:

Consolidated Land Regularization Institutions in Nicaragua



Source: Interviews; PRODEP reports.

⁵ The Compact did not differentiate between titles on agrarian reformed lands and non-reformed/private lands. The Property Regularization Project worked with both categories.

⁶ PRODEP was constituted by decree as a technical secretariat of the Nicaraguan Ministry of Finance and Public Credit, and was developed and is supported by the World Bank.

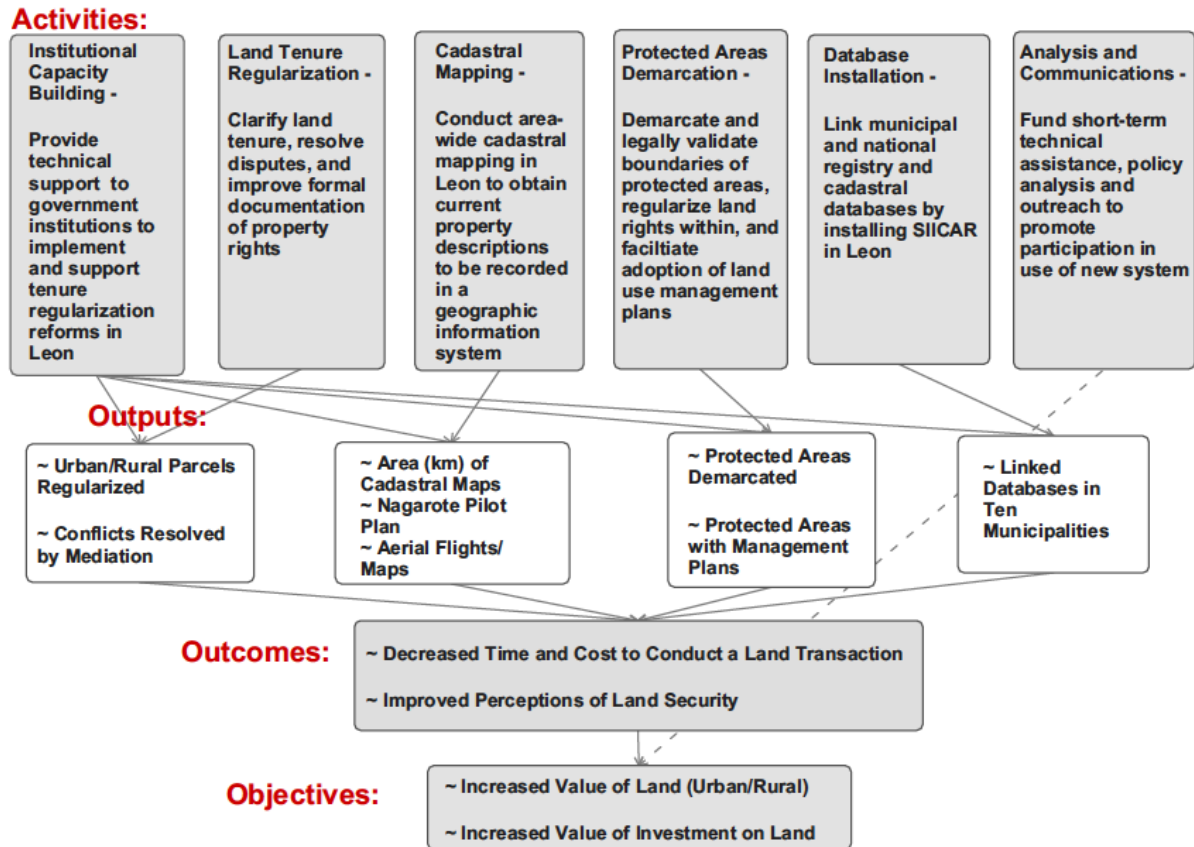
According to the former MCA-Nicaragua General Counsel and a MCC official, during Compact negotiation, MCA-Nicaragua regularly communicated with its counterparts in the legislature to inform stakeholders and legislators of the importance of the legislation related to a cadastral law passed in 2005 just prior to the Compact's signing. While this did not appear as a Condition Precedent (CP) in the Compact, MCA-Nicaragua's former General Counsel characterized this as an informal CP. MCC and MCA-Nicaragua also confirmed their involvement in the passing of an August 2009 Public Registry General Law, a modern land registry and property conveyance law that created the necessary legal framework to launch the operation of the Integrated Cadastral and Registry System (SIICAR), the system created by PRODEP to modernize, automate, and organize data related to cadastre and legal title for citizens and government workers involved with land regularization.

According to stakeholders, the Government of Nicaragua wanted a change from the traditional World Bank land regularization model⁷ in which international firms were hired after long and fastidious procurement processes, deliverables were of dubious quality, and accountability to the Government of Nicaragua was lacking. The Government of Nicaragua desired that its institutions perform the property regularization work in order to build institutional capacity and in an attempt to avoid the technical and operational contractual issues and delays that had arisen with the traditional external contractor approach. As such, MCC and MCA-Nicaragua supported the testing of this approach, via a pilot program in the municipality of Nagarote that would build capacity and improve systems in Nicaraguan land regularization institutions at the national and local levels, as requested by the Government of Nicaragua. MCC, MCA-Nicaragua, and Nicaraguan government officials expected certain benefits from the direct administration of land regularization activities (see Table 1, page 6). This pilot program's approach, called Direct Administration, created momentum to continue with the new methodology in other municipalities in León.

⁷ The World Bank has over 25 years of experience in land policies and operations with the region's land issues with over US\$500 million invested and committed in land programs in Central America. See World Bank's Land Administration Project II, El Salvador, Report: AC1303.

D. Program Logic: Program logic is found in the Project's Compact Schedule's summary of activities.⁸

Figure 3: Property Regularization Project Program Logic



Source: Nicaragua Compact

Assumptions: According to the Compact, studies in Nicaragua showed that regularizing property rights through land titling and property registration were associated with a 30% increase in asset values and a 10% increase in the probability of landholders undertaking additional investments in the property. A clearer definition of property rights through improved land titling was expected to benefit the economy through various channels: by increasing the private returns to investments on land, by improving the ability to use land to leverage credit, by reducing high costs of land related transactions, and by reducing the need for defensive expenditures to protect property rights. MCC did not develop any assumptions related to the intervention in protected areas.

MCC's estimate to get economic internal returns was the estimate of increase in land value, and savings in transactions costs. For the increase in land values, MCC used an average of estimates from studies in both Honduras and Nicaragua, which gave a 22% increase. The EIRR

⁸ Compact between MCC and Nicaragua, Schedule 1-1 to 1-4.

for the Property Project was estimated to be 29%.

E. Intended Benefits: The Property Regularization Project expected to directly benefit anyone who had a property interest in land in León, and particularly the poor, who historically have had a limited ability to resolve land tenure irregularities and to complete the formal registration of their property rights in the land registry.

The Parties anticipated that roughly 40% of the beneficiaries of the Project would be women who, jointly or independently, had land rights. Residents and businesses in the area were to benefit from an improved investment climate resulting from increased land tenure security and lower property-related transaction costs.

Table 1: Expected Benefits of Decentralized of Land Administration Services

- Improved execution of day-to-day registry and cadastre services at local level
- More accessible and efficient land services
- More effective use and maintenance of electronic registry
- Modernization of local land administration services
- Local dispute resolution mechanisms to solve boundary conflicts without resorting to the court system
- Training and technical assistance, including institutional strengthening, technical equipment, and vehicles

Source: Interviews, PRODEP reports

F. Projected Results:

Table 2: Property Project Projected Results	
Indicator	Target
Land Tenure Regularization	
Value of Investment on Land (US \$)	32% over baseline (US\$786)
Value of Land (urban) (US \$)	not stipulated
Value of Land (rural) (US \$)	447.00
Perception of land tenure security	50% increase from baseline (92%)
Number of additional parcels with a registered title (urban)	22,000
Number of additional parcels with a registered title (rural)	21,000
Percentage of conflicts resolved by mediation program	90%
Database Installation	
Time to conduct a land transaction (# of days)	50% decrease from baseline (49 days)
Full cost to conduct a land transaction	50% decrease from baseline (5.34%)

Automated database of Registry and Cadastre installed in the 10 municipalities in the Dept. of Leon	100%
Protected Areas Demarcation	
Number of Protected Areas with formulated Management Plans	4
Number of Protected areas demarcated	4
Cadastral Mapping	
Area in Km ² covered by cadastral mapping	5,138.00
Pilot Plan of the Cadastral Survey and the Property Regularization	100%
Aerial Photogrammetric Flights and Orthophoto Maps for the Cadastral Survey	100%

Source: Indicator Tracking Table

By combining land titling with a rural business services project, the Nicaragua Compact contemplated understanding the impacts of land titling in isolation and in combination with provision of business services. But in June 2009, MCC terminated the Project and discontinued the active monitoring of Project indicators due to conditions leading up to, during, and following municipal elections of November 2008 that were inconsistent with MCC's eligibility criteria that resulted in partial termination of the Compact.

II. METHODOLOGY AND DATA

Evaluation Strategy: The focus of this performance evaluation was whether or not the Project's program logic was sound and successful and had the intended benefits related to generating economic growth. The evaluation sought to determine if the Project did what it was designed to do, and whether it had unintended benefits.

The evaluation delved into the components of the logic and sought evidence to (1) confirm whether planned activities were undertaken as planned and fully implemented; (2) analyze whether the initial assumptions made about conditions that could affect the progress or success of the activities held true; (3) assess whether the implemented activities achieved their targeted objectives, outputs, outcomes, and impacts; (4) determine whether activities and outcomes have been and will continue to be sustained, and the likelihood that they will be sustained over the short-and long-term, and (5) whether the project was cost effective.

This Performance Evaluation employed qualitative methods to assess the degree to which activities were undertaken and implemented; achievement of outputs, outcomes and impacts; and prospects for sustainability. Qualitative approaches included interviews (structured and unstructured) with key informants, listed in Annex A. Qualitative methods supplied information on the nature and content of this Project to contextualize numerical evaluation results, and provided insights into program implementation. Rigorous analysis of

qualitative data was done using content analysis and analytical induction.⁹ The absence of a counterfactual precludes a quantitative measure of program impact. Documents, data, and literature reviewed are listed in Annex B.

DATA

Data 1: The pilot project conducted in the municipality of Nagarote provides limited Project data related to physical surveys, mapping, determining clear property rights, and registration of these rights in the names of small farmers and urban dwellers. Approximately 2500 parcels (2449 urban, 396 rural) were titled, with over 50% of these titles going to women heads of households.¹⁰ Cadastral mapping covered an area of 309 km². Three out of four planned management plans for protected areas were developed and boundaries were marked in three protected areas. Local mediation efforts were reported to have resolved 78% of all property related conflicts identified within the pilot project area through alternative dispute resolution practices.¹¹

Data 2: According to the Indicator Tracking Table, by October 2009 MCA-Nicaragua had eliminated most indicators for this Project “because the program has changed and the indicators are no longer relevant.”¹² Prior to the suspension of this project, predominately due to the work on the pilot project mentioned above, MCA-Nicaragua accomplished the issuance of 2,449 urban titles (11% completed) and 396 (1.89% completed) rural titles, and cadastral mapping covered 309 km² (6% completed). The Project met 100% of its objective to implement the aerial photogrammetric flights and maps for the cadastral survey, and had demarcated and developed plans for 3 of 4 protected areas. The evaluation did not find any evidence related to implementation of the contemplated sixth activity, about funding policy analysis and outreach to promote the use of and sustainability of the improved property registration system.

Data 3: MCA-Nicaragua implemented a follow-up survey of several neighborhoods that participated in this Project to provide updated data to strengthen the evaluation’s analysis. See Annex C for Follow-Up Survey Questions. The data for the new survey was collected through face-to-face interviews of Nicaraguans by Nicaraguans. The sampling frame for the new survey was the list of all members in the population of interest tracked by MCA-N who have received titles through this intervention. MCA-Nicaragua drew the sample from this target population. By selecting geographic clusters of titled parcels within the given population (non-random cluster sampling), time and money was saved, and real-time data was obtained. The evaluation deferred to MCA-N’s Monitoring and Evaluation team for the

⁹ As used in performance evaluations, analytic induction requires an additional inquiry step once the initial hypothesis or findings are developed, to search the data for falsifying evidence, and to modify the findings accordingly. Content analysis summarizes narrative content by counting various aspects of the content, analyzing written words to produce numbers and percentages, when appropriate.

¹⁰ MCC Indicator Tracking Table, 2011.

¹¹ Ibid.

¹² MCC Indicator Tracking Table, July 11, 2011.

suggested communities, based on ease of access from León and compact nature of the neighborhood.

For its sample, MCA-Nicaragua selected four urban neighborhoods in León where the Project regularized land tenure. The Project reached a total of 885 beneficiaries in four

<p>Table 3: Self-Reported Investments on Newly Titled Urban Land</p> <p>Percentage of Respondents Making Investments: 45%</p> <p>Total Value of Investments Made: \$78,000 for 53 parcels</p> <p>Average: US\$ 1471 per parcel</p> <p>Purpose of Investments: Construction-related. 98% (of the 45% that made investments) reported home improvements</p> <p>Source: MCA-Nicaragua Follow-Up</p>
--

neighborhoods (Lino Arguello, Azariah Pilláis, and William Sampson - 500 beneficiaries; and Mariana Fonseca – 385 beneficiaries). MCA-Nicaragua staff used SPSS to select the random sample. According to MCA-Nicaragua, the total sample was 120 cases (11%). The evaluation recognizes that the smaller samples run the risk of greater sampling error than a larger sample, but takes advantage of the current data.¹³ The total sample of 117 responses (3 out of 120 were not located) provided real-time qualitative data on several important aspects of this Project. The survey data tells us about current perceptions of land regularization issues in the target area and provide information from which to draw some conclusions related to the validity of Project assumptions and program logic. Despite the small sample we received a relatively high response rate. The survey results cannot be generalized to the larger population and do not provide data related to rural

parcels.

115 of 117 (98%) respondents reported that the value of their land was worth more since the title had been registered through the Project. See Table 3.

53 of 117 respondents (45%) reported investments in the land after titling, mostly in the US\$25 to \$3500 range, See Chart 2. 98% reported investments related to construction, such as minor repairs to the home, and investments in new bedrooms, kitchens, ceilings, living rooms, and walls. See Table 4. Two respondents (1.7%) reported new loans or credit from the land (US\$6,700 and US\$500). In response to the question: “Do you think someone else outside your community with more money or power than you, or a neighbor could take their land illegally?” only 9 of 117 (7%) reported that they felt someone could come and take their title illegally. This relates to one of the original outcome indicators regarding landowners’ perceptions of land security. In this sample, legal title engendered land tenure security

Table 4: Follow-up Survey Results

Since the parcel’s title was legally registered:

- Value of land increased 98%
- Investments made 45%
- Credit obtained 2%
- Someone could come and take the title illegally 7%
- Used conflict mediation service 0%

Source: MCA-Nicaragua Follow-Up Survey, September 2011

¹³ The evaluator proposed that a randomized sample be drawn from a neighborhood that did not receive the property regularization intervention for comparison, but this did not occur, mostly due to time constraints related to the MCA-Nicaragua office close-out that was happening during the course of the review and during the evaluation’s field work in Nicaragua.

in 93% of the respondents. No one (0%) reported taking advantage of the conflict mediation services. Data such as zero respondents reporting haven taken advantage of the popular conflict medication services (which continues to function in León), demonstrates the limitations of extrapolating results from this survey to other Project population.¹⁴

Data 4: Randomized control trial surveys were conducted within the MCA-Nicaragua Rural Business Development intervention that had one section dedicated to land regularization. This survey was implemented as a baseline in September 2007, then again in March 2009. The RBD survey focused on increases in annual rural household incomes and asset values to justify project costs. However, due to the short implementation period of the Property Regularization Project, this survey did not report intended benefits related to economic aspects such as increased investment or added value of the land relevant to the Property Project.

III. FINDINGS AND ANALYSIS

A. PROGRAM LOGIC

A1. Overall Program Logic Was Sound: The logic of five of the six planned activities was sound, practical, and based on experiences from previous land regularization efforts. Project implementers, managers, international donors, and local partners articulated consistent program logic for the Property Regularization Project. Overall, stakeholders considered the logic of five of the six planned activities as relevant for the Nicaraguan context and based on past experiences and lessons from previous land regularization efforts in Nicaragua, the region, and other nations. The activity related to the protected areas was less pertinent to property regularization efforts and not often seen as a component of land regularization projects in the relevant literature.

Notably, a strong qualitative assessment was performed at the outset to help inform the quantitative analysis, including, as one example, a qualitative metric related to perceptions of land security. The evaluation found generally that the Performance measures were aligned with the Project's objectives, an indicator of strong program logic.

A2. Several Stakeholders Questioned Certain Project Assumptions: Several Government of Nicaragua, MCA-N, and World Bank officials, however, opined that the Project's assumption that if titled, a property value increases, although widely cited in the relevant literature, might not hold true in Nicaragua due to high poverty levels of some landowners, even with a full implementation and monitoring period of five years. Since the Project was terminated after a short time, this could not be tested because there was no

¹⁴ MCC asked the evaluator for an assessment of the strengths or weaknesses of the survey, performed "at the height of closeout." The survey provided real-time data, particularly for urban parcels. Urban parcels were selected for ease of access. This worked out well and the response rate was high. Data from rural parcels would have been equally useful, especially with respect to income-producing investments made and perceptions of land security. Most importantly, a counterfactual would have provided comparisons.

data available to determine whether titled properties had a higher average value than those without title; and that if titled, that the value increased.

Table 5: Project Assumptions Questioned By Stakeholders

- 1) If titled, a property value increases;
- 2) Land titling reduces property transaction costs and reduces property transaction time; and
- 3) Greater land tenure security encourages environmental protection.

Source: Interviews.

Additionally, several Nicaraguan government officials opined that the real benefit of obtaining a legal, registered title for most landowners in rural settings around León is the “peace of mind” that comes with title security. While the evaluation did not obtain generalizable data to either validate or repudiate this opinion, the majority of respondents (urban) in the follow-up survey felt that their land was worth more than it was prior to titling. There was no data from the surveys taken during the Project’s implementation to demonstrate that the rural titled properties have a higher average value than those without title or that landowners perceived higher land values after titling. Even with a full five-year project implementation period, several officials considered

that although landowners might make investments in their property, there is not a direct correlation of this investment to raised incomes, especially for urban parcels. The literature on this subject supports the emphasis placed on the benefits of title security but does not support the oft-repeated contention that rural landowners will not invest in their newly titled land.

Similarly, an MCC official and several MCA-N officials questioned the validity of the assumption that land titling reduces property transaction costs, characterized by several interviewees as a long-standing, traditional World Bank indicator. Officials suggested that this assumption may not be valid based on (1) a lack of available data on indirect costs and (2) knowledge that established government transactional fees have not decreased here due to land regularization efforts.¹⁵ The evaluation did not find any evidence that would permit assessment whether titling reduces property transaction costs or reduces transaction time. While having municipal cadastre services in León could decrease indirect costs, no data was found to verify or validate this assumption. Also, an important direct cost is a tax (4%) of the fiscal value of the land and any buildings or improvements, which has to be paid before registration. This cost remains the same. With respect to this particular transactional cost, the assumption does not hold true.

Finally, Project implementers, international donors, and local partners uniformly rejected the Project’s assumption that greater land tenure security encourages environmental protection. No data was found to support or refute this sentiment.

¹⁵ According to a 2001 Government of Nicaragua study cited by one economist, indirect costs for land regularization (transport, food, opportunity costs) can be as much of the monthly average agricultural wage in more remote areas. See “Investment and credit effects of land titling and registration: Evidence from Nicaragua,” de Laiglesia.

B. ECONOMIC BENEFITS

B1. Cost Effectiveness Can Not be Determined Since the Pilot Program's Cadastral Activity Front-Loaded Certain Project Costs in the Abbreviated Implementation Period: Benefits of land titling generally accrue in the future as annual net benefits, but the costs are incurred upfront during program implementation. That is what occurred with this Project. According to one MCC official, front-loaded investments in equipment, planning activities, and establishing, organizing and training field teams, as some examples, increased the costs for the cadastral aspect of the pilot program. This was further exacerbated by the abbreviated nature of the Project. See Table of Costs, Annex D. See also subsection C1. The MCC official opined that the short execution term of the Project resulted in costs at least 50% more than comparable costs from other similar projects with longer implementation terms.¹⁶ The evaluation did not find relevant data to make the comparison.

While it may be relatively straightforward to identify sources of expected costs and quantify them at the outset of a land title intervention, it appears more difficult to quantify the expected benefits, particularly when uncertainty exists related to whether opportunities will truly eventuate, for instance, to invest in agricultural production or to increase access to credit. Moreover, the costs of the components differ: i.e. title regularization can cost less than doing cadastral sweeps. See Table of Costs, Annex D.

Ultimately, titling benefits are best reflected in land price changes, a metric that this evaluation could not assess. As noted previously, while urban landowners with registered titles reported that they felt their land was worth more now after title registration in the new survey, real changes in land prices will capture the net effect of all land titling benefits, including the metrics that remain unmeasured for this Project such as increased land transferability and reduced costs and time for property transactions.¹⁷ Again, the Project's term was too short to adequately measure the net effects.

B1. Follow-Up Survey Results Suggest Certain Intended Economic Benefits: Although the intended benefits related to economic aspects such as increased investment or added value of the land were not reported during the Project's abbreviated implementation period, evidence of the Project's intended benefits is found in the follow-up survey's data. For example, although beneficiaries' perceptions of increased land value was not verified (and the parcels have not been sold), it is important that almost 98% felt that their land is worth more with the title, consistent with the Project's assumptions (See Data Section, pages 8-9).

¹⁶ It cost US\$222.50 for a parcel with a cadastre sweep; US\$58.20 for a parcel from agrarian reform (sector reformada regularizada); US\$33.65 for a parcel under private land ownership (sector no-reformada regularizada). Calculations by Kevin Barthel, MCC Land Lead.

¹⁷ The question whether to sever the Project's investments that do not go directly to titling (and if so, which ones and what percentages) remains unanswered with respect to determining the Project's cost effectiveness.

This is consistent with recent studies of economic impacts in urban property regularization programs.¹⁸ While 45% of respondents reported investments in the land after titling, the lack of a counterfactual precludes attribution to the Project's outcomes. What the new data also do not show is whether these households made income-generating investments, as expected. This is more often seen on plots with farming purposes, with new or improved irrigation systems, farm buildings, timber and tree crop planting, terracing, etc.¹⁹

Relevant literature suggests that the benefits of urban land activities are qualitatively and quantitatively different from those experienced in rural areas.²⁰ Finally, in both rural and urban areas, information about counterfactual groups would have been useful for comparison.

C. IMPLEMENTATION FACTORS

C1. The Implementation Period Was Short: The Project's implementation was delayed for several reasons. According to MCA-Nicaragua officials, the planning for this Project took 18 months, leaving only one year for implementation. MCC officials confirmed this considerable delay, noting that the initial approach to land regularization was abandoned after a problem with the bid for an international firm. MCA-Nicaragua's former General Counsel stated that the Government of Nicaragua refused to follow the negotiated terms of the Compact related to who would manage the land regularization activities, and that the subsequent negotiation with the Government of Nicaragua about their involvement in the direct administration methodology took several additional months.

Stakeholders noted their perceptions of additional challenges that contributed to the Project's delayed start, such as: a long legalization process; inconsistencies with the land registration and cadastral documents at the municipal and departmental levels; finding qualified Nicaraguan staff to work on the cadastral sweeps; and the lack of communication between the Nicaraguan institutions involved in land regularization.

Notably, the Project implementation period was too short to adequately assess the validity of the logic's assumptions related to whether regularizing property rights through land titling and property registration would increase asset values in both urban and rural neighborhoods. Similarly, the truncated Project implementation period was too short to adequately assess the validity of the logic related to whether landholders would make additional investments in the newly titled property that would increase income, that transaction costs reduced, or to meet most of the targets.

¹⁸ See Literature Review: "Social and economic impacts of land titling programmes in urban and periurban areas of developing countries," Geoffrey Payne, 2008.

¹⁹ "Economic Analysis of Rural Land Administration Projects," Stefano Pagioli, World Bank, 1999.

²⁰ "Benefits and Costs of Rural Land Titling: The International Experience," Solomon Bekure, 2006; see also "Economic Analysis of Rural Land Administration Projects," Pagioli.

C2. Project Implementation Faced Challenging Political and Land Regularization

Contexts: Despite some advances, MCC and MCA-Nicaragua and local landholders were still dealing with several moribund Nicaraguan institutions at the executive, judicial, regional, and municipal levels and the high level of tenure insecurity on private lands in the target region. While the organizational construct is less complicated today and many land regularization governmental functions have been somewhat consolidated, the evaluation characterizes the property regularization system as fledgling and not yet fully operational and responsive, based on the qualitative input received.

The evaluator was reminded numerous times by a wide range of stakeholders during the course of the assessment that land titles are allegedly used as part of political strategies. For this reason, coupled with Presidential and parliamentary elections that took place in November 2011, right after the evaluation's field work in Nicaragua, several stakeholders told of the probable difficulties the evaluation would encounter in obtaining accurate data sought for two key indicators: the number of registered titles and the amount of land with completed cadastral sweeps in the target region that occurred since the Government of Nicaragua's last Progress Report.²¹

D. RANGE OF IMPACTS

Even with brief implementation and early Project termination, participating stakeholders consistently reported that the Property Regularization Project delivered significant achievements during its implementation.

D1. A Replicable Methodology Was Developed: The Government of Nicaragua has adopted the methodology for systematic land tenure regularization known as Direct Administration for its property regularization efforts, an approach that MCA-Nicaragua refined, recommended, and promoted in the Department of León. The “genius” of this Project, one local official stated, was how it took advantage of almost 20 years of World Bank's (and others') land regularization efforts and lessons learned in Nicaragua. A wide range of stakeholders emphasized that the direct administration approach has both built Nicaraguan capacity²² and brought land regularization and services to the municipality level, mostly related to cadastre. This is important to the Nicaraguans interviewed who felt that previous foreign firms and external consultants responsible for land regularization activities would hire outsiders to perform the work who were less responsive than locally Nicaraguan staff, most who were from the target region, and less familiar with the local land realities.

²¹ The most recent progress report provided is: Procuraduría General de la República Programa de Ordenamiento de la Propiedad (PRODEP) Resumen de Avances en la Implementación de Las Actividades del PRODEP [Attorney General of the Republic's Property Regularization Program's Progress Report re: PRODEP Activities], July, 2010.

²² MCC funds also supported a trip for officials from the Government of Nicaragua to Panama to see Panama's version of direct administration, and brought officials from Bolivia to work with Government counterparts, providing training and exposure to Nicaraguans at national, departmental, and municipal levels.

Several stakeholders emphasized the value of the Project's local office dealing with conflict mediation, which continues today in León. Several stakeholders mentioned the benefits of training staff from the target area to perform the technical work, such as cadastre.

D2. Sustainability: Regularization Work Continues But Modernization Efforts Have Had Mixed Results: Property regularization activities in León initiated by MCC and MCA-Nicaragua are now funded by a US\$10 million loan and US\$6 million in grants from the World Bank and the Government of Venezuela's Bolivarian Alternative for Latin America and the Caribbean (ALBA), respectively. MCC and MCA-Nicaragua officials emphasized the Project's achievement related to donor collaboration, especially the efforts to persuade the World Bank to expand its property regularization activities into Leon and continue MCA-Nicaragua's work. The Government of Nicaragua and World Bank data provided to this evaluation is inconsistent as to numbers of registered titles and amount of land swept since MCC suspended operations, but additional titles have been registered in León since this time, and that much of the department has had a cadastral sweep to obtain current property descriptions (see Data section.)

Additionally the Government of Nicaragua continues to work in both the reform and non-reform sectors, which is a positive and sustainable result from the Project. According to one Government of Nicaragua official, Venezuela's ALBA is also funding additional land regularization activities on the Caribbean Coast, replicating the Direct Administration methodology promoted and refined by MCC and MCA-Nicaragua. The evaluator did not have the opportunity to meet with ALBA representatives, as requested, to verify this.

In terms of modernization efforts, MCC invested in the conversion of a dilapidated older building in the main plaza of the City of León into a modern government land administration facility that now houses the departmental level offices of the National Cadastre and the National Property Registry. Also, MCC-funded activities supported institutional capacity building of PRODEP (the Nicaraguan property regularization institution) and local government institutions in León for recording property rights and providing related services for property transactions. According to several stakeholders, these efforts have assisted to strengthen the skills of some PRODEP staff and municipal staff in Leon and improved certain recording and reporting mechanisms, but this evaluation could not confirm this.

The Government of Nicaragua expected to install SIICAR in this building to further modernize land regularization, but a Government of Nicaragua official stated that this has been postponed since the Government of Nicaragua has suspended efforts to link municipal and national registry and cadastral databases in León through the installation of SIICAR. Before rolling out SIICAR in another department, the official explained, the Government of Nicaragua intended to address SIICAR's current system and process deficiencies. The evaluator requested data from the system with respect to several Project indicators from the SIICAR Director in Managua, but the reports were not made available. The evaluation did not find evidence of impact from SIICAR-related activities in the target region despite the passing of the law related to SIICAR.

While several longer-term impacts of MCC's funding related to improving government's land agencies' technical capacity might sustain themselves in the short-term, this cannot be confirmed. For example, over US\$2 million in specialized equipment was acquired, including

computer technology such as digital cartography of the entire Department of León, and vehicles. The Project trained government technicians in technical aspects related to cadastre but was suspended before meaningful SIICAR technical training could occur. Moreover, the evaluator was not permitted to access the areas where the equipment in Leon was allegedly being used by the Nicaraguan technical staff in order to verify that the equipment was used. For the technical training related to SIICAR, the evaluation cannot confirm that the equipment is being used as intended.

In conclusion, the evaluation found evidence of some positive steps related to modernizing and strengthening the real property rights system in Nicaragua but was unable to verify the extent of the use or qualify the extent of the intervention's sustainability related to modernization efforts.

D3. Protected Areas Mapped and Management Plans Were Drafted: Boundaries of three environmentally sensitive protected areas were physically demarcated and mapped, and three land use management plans were developed for these areas. This activity, coordinated with the Ministry of Natural Resources and Environment, progressed rather smoothly, according to MCA-Nicaragua and Government of Nicaragua officials. The evaluation did not find evidence of impact.

The original metric was four protected area management plans, but issues with an indigenous land rights in the other protected area necessitated further studies that prevented full completion of that output indicator.

As noted previously, MCC did not develop any assumptions related to the intervention in protected areas, and the purpose of this intervention, i.e. to legally validate protected areas' boundaries, is less pertinent to land regularization than the other five Project activities.

E. UPDATED RESULTS

The Government of Nicaragua Did Not Provide Updated Data: MCA-Nicaragua officials estimated that by the time of the performance evaluation (2011), 20,000 to 25,000 additional titles that were in the pipeline would have been legally registered since the Project ceased working on land regularization activities (2009), but comparing the snapshot of data provided by World Bank and Government of Nicaragua sources (see Table 6) to these estimates, the MCC and MCA-Nicaragua estimates are high.²³

The Government of Nicaragua's final report to MCA-Nicaragua reported that 714 registered titles were completed in 2009 in the Department of León.²⁴ The report does not disaggregate the 6,529 total titles reported as registered in 2010 (between León and the Department of Chinandega). Nevertheless, it is apparent that the title work in León was making considerable progress in 2010. The point here is that land regularization activities continue in León but with unknown numbers and pace.

Table 6: Registered Titles in León
(January to July 2011)

Urban and Rural Parcels	Nicaragua Public Registry	World Bank Nicaragua
Number of Registered Titles	4,660 reported	749 reported

Sources: Interviews; World Bank data provided after interview.

The evaluation was unable to obtain updated, reliable data for the two key indicators (the amount of registered titles and the amount of land with completed cadastral sweeps) from the Government of Nicaragua, despite an oral commitment to provide the data to the evaluator. Despite persistent follow-up during the evaluation, the official interviewed from the Nicaraguan Public Registry did not respond to requests for clarification on the numbers provided or updated data.²⁵ Likewise, MCA-Nicaragua's data was unavailable for most of the tracked indicators, as seen in Table 7.

²³ Several interviewees suggested that the Government of Nicaragua was delaying its announcements of the real numbers of registered legal titles until right before the election. If this were true, MCC and MCA-Nicaragua projections might turn out to be accurate. This cannot be confirmed but speaks to the highly political nature of land regularization efforts.

²⁴ PRODEP report (Programa de Ordenamiento de La Propiedad): Procuraduría General De La Republica, Programa de Ordenamiento de La Propiedad, Resumen de Los Avances Obtenidos En La Implementacion de Las Actividades del Financiamiento Adicional del Prodep, 31 de Mayo 2010.

²⁵ A World Bank official communicated with the Government official asking for clarification of data orally provided to the evaluator and for additional data, but the returned email was unresponsive. The evaluator requested clarification from both parties, but did not receive a response from either party. The combination of the political nature of land regularization in Nicaragua, upcoming national elections in November 2011, and thorny bilateral relations issues likely contributed to the Attorney General of Nicaragua's refusal to permit a meeting with the director of the property regularization government institution as part of this evaluation, and to the evaluation's inability to obtain requested data.

Table 7: Property Project Updated Results		
Indicator	Target	Percentage Completed
Land Tenure Regularization		
Value of Investment on Land (US \$)	32% over baseline (US\$786)	indicator eliminated
Value of Land (urban) (US \$)	not stipulated	indicator eliminated
Value of Land (rural) (US \$)	447.00	indicator eliminated
Perception of land tenure security	50% increase from baseline (92%)	indicator eliminated
Number of additional parcels with a registered title (urban)	22,000	11.1%
Number of additional parcels with a registered title (rural)	21,000	1.89%
Percentage of conflicts resolved by mediation program	90%	54%
Database Installation		
Time to conduct a land transaction (# of days)	50% decrease from baseline (49 days)	indicator eliminated
Full cost to conduct a land transaction	50% decrease from baseline (5.34%)	indicator eliminated
Automated database of Registry and Cadastre installed in the 10 municipalities in the Dept. of Leon	100%	indicator eliminated
Protected Areas Demarcation		
Number of Protected Areas with formulated Management Plans	4	75%
Number of Protected areas demarcated	4	75%
Cadastral Mapping		
Area in Km ² covered by cadastral mapping	5,138.00	6%
Pilot Plan of the Cadastral Survey and the Property Regularization	100%	100%
Aerial Photogrammetric Flights and Orthophoto Maps for the Cadastral Survey	100%	100%

Source: Indicator Tracking Table

IV. LESSONS LEARNED

- MCA-N took advantage of lessons learned and best practices from previous land regularization efforts in Nicaragua to develop and refine the successful methodology used for this Project.
- In the urban areas of León, the relationship of titled land to increased household incomes and consumption patterns was not readily apparent in the short implementation period.

V. RECOMMENDATIONS

Assumptions:

- Re-examine the validity of three Project assumptions based on other relevant MCC land regularization experiences: (1) that land titling increases investment on parcels, raising income in a range of 2.5 to 3%; (2) that land titling reduces property transaction costs, creating greater savings and income; and (3) that greater land tenure security encourages environmental protection.

Monitoring:

- Determine whether monitoring two Project outcome indicators (reductions in time and reductions in costs for land-related transactions) produces meaningful data or accurately reflects the time-cost realities for land transactions.
- Consider monitoring the category of investments made by beneficiaries, in addition to the values, on urban and rural plots to provide data as to whether the investments relate to raising income.
 - (a) Indicator: the category of investment (i.e. new loans or credit, new construction, repairs, etc.)
 - (b) Indicator: average value of investment, per category (rural area)
 - (c) Indicator: average value of investment, per category (urban area)

VI. CONCLUSIONS

With the backdrop of a complex land tenure situation in Nicaragua and upcoming national elections, this Project produced several accomplishments in a short time. The logic of the six planned Project activities was sound, practical, and based on experiences from previous land regularization efforts, but the 30-month Project implementation period was too short to rigorously assess Project results.

One important Project result was that the Government of Nicaragua adopted the methodology for systematic land tenure regularization that MCA-Nicaragua refined and promoted in the Department of León, a direct administration approach that builds capacity, especially at the municipal level. Moreover, the World Bank and the Government of Venezuela now fund property regularization activities in León using this approach. Overall, while modernization efforts have had mixed results, some technical aspects such as

surveying, mapping, and issuing titles have progressed in León. Finally, donor coordination was strong, especially the Project's efforts to persuade the World Bank to expand its property regularization activities into Leon and continue MCA–Nicaragua's work.

Annex A

People Consulted

MCC:

- Kevin Barthel, MCC Land Sector Lead
- Steve Marma, former MCC Nicaragua Country Representative (currently MCC Mozambique Country Representative)
- Lola Hermosillo, MCC Monitoring and Evaluation
- Eddy Jerez, former MCC Nicaragua Deputy Director
- Jack Molyneaux, MCC Director of Impact Evaluations (re: scope and methodology)

MCA-Nicaragua

- Dr. Juan Sebastian Chamorro, former MCA-Nicaragua Director
- Juan Manuel Sanchez Ramirez, former MCA-Nicaragua Counsel and Chief of Staff
- Ignacio Velez, MCA-Nicaragua Deputy Director
- Carmen Salgado, MCA-Nicaragua Director of Monitoring and Evaluation
- Claudia Paniagua, MCA-Nicaragua, Monitoring and Evaluation
- Edgar Sotomayor, former MCA-Nicaragua Operations Manager

Government of Nicaragua

- Dr. Myriam Jarquin, Integrated Cadastral and Registry System Director, Property Public Registry, Managua
- Fernando Palacios, Ministry of Natural Resources and Environment (MARENA), Protected Areas Coordinator, León

World Bank

- Margarita Arguello Vega, Operations Consultant, World Bank Nicaragua
- Augusto Garcia Barea, Operations Officer, World Bank Nicaragua

Other

- Gerry Morales, Private Attorney, at León Public Registry

Annex B

Literature and Data Review

MCC Nicaragua website (www.mcc.gov/pages/countries/overview/nicaragua)

- Nicaragua Compact Document
- Summary of Nicaragua Compact Document
- MCC's Economic Rates of Return for Nicaragua Compact
- MCC Scorecard/Nicaragua FY11
- Nicaragua M&E Plan 2010
- Basis Brief, March 2010
- MCC Final Investment Memo for Rural Business Development, 2005
- MCC Property Project ERR, 2005
- Land Titling Beneficiary Analysis
- MCC Final Mission Report
- Barthel, Kevin, Nicaragua Property Regularization Project Summary Narrative, June 2010
- Barthel, Kevin, Nicaragua Property Regularization Project, Final Audit of Vehicle Use leading to the Final Disposition of Assets and Transfer of Ownership, May 2010
- Barthel, Kevin and Eddy Jerez, Trip Report, Nicaragua Property Regularization Project, Dec. 2009
- Barthel, Kevin, Unit Cost Analysis for Nicaragua Pilot Project, 2009
- Carter, M.R. 2007. "Impact Evaluation Strategy for the MCA-Nicaragua Program."

MCA-Nicaragua website (www.cuentadelmilenio.org.ni/)

- MCA-Nicaragua Annual Reports
- MCA-Nicaragua Proposal for New Strategy for Rural Business Development Project, Nov. 2007
- MCA-Nicaragua Strategy and Action Plan for Management of RBD Services, May 2007
- MCA-Nicaragua Property Household Survey, Section 6
- MCA-Nicaragua Agreement with the Ministry of Finance and Credit, August 2006
- MCA-Nicaragua, Data from Final Survey (September 2011)

World Bank

- World Bank, Additional Financing of PRODEP, February 2010
- Nicaragua Administrative Land Title Chronograms supplied by Marguerita Arguello, World Bank, August 2011

Government of Nicaragua

- PRODEP report (Programa de Ordenamiento de La Propiedad): Procuraduria General De La Republica, Programa de Ordenamiento de La Propiedad, Resumen de Los Avances Obtenidos En La Implementacion de Las Actividades del Financiamiento Adicional del Prodep, 31 de Mayo 2010.
- PRODEP report: Ministerio de Hacienda y Crédito Público Intendencia de la Propiedad, Informe Final, November 2007
- PRODEP data supplied by Marguerita Arguello, World Bank, August 2011

Other

- de La Iglesia, Juan, London School of Economics, 2004. "Investment and credit effects of land titling and registration: Evidence from Nicaragua."
- Deininger, Klaus and Juan Sebastian Chamorro, The World Bank Development Research Group, 2002. "Investment and Income Effects of Land Regularization, The Case of Nicaragua."
- Everingham, Mark, Latin American Politics and Society, 2001. "Agricultural property rights and political change in Nicaragua."
- Payne, Geoffrey, 2008. "Social and Economic Impacts of Land Titling Programmes in Urban and Peri-urban Areas of Developing Countries."
- Bekure, Solomon, 2006. "Benefits and Costs of Rural Land Titling: The International Experience."
- Jacoby, Hanan and Bart Minten, Oxford University Press, 2007. "Is Land Titling in Sub-Saharan Africa Cost-Effective? Evidence from Madagascar."

- World Bank, 2005. “Land Administration Project II, El Salvador, Report: AC 1303.”
- Pagioli, Stefano, World Bank, 1999. “Economic Analysis of Rural Land Administration Projects.”

Annex C

Follow-Up Survey Questions

Translated from Spanish

- 1: Verify if the owner of the piece of land is the same that has regularized it via MCA/PRODEP.
- 2: Is this piece of land worth more than when you purchased it?
- 3: Have you made any improvements to or have you invested in your land?
- 4: If you made any investment, specify it briefly and detail the value of the investment?
- 5: Did you get a mortgage or any bank credit for having the newly registered title/deed?
- 6: If you answered YES to Question 5, how much was the loan?
- 7: What is the legal status of this piece of land?
- 8: Do you think anyone outside of your community with more money or power than you have, or a neighbor could take your land illegally? This question refers to any piece of land owned by the respondent.
- 9: Have you used a mediation program to resolve conflicts with your land? This question refers to any piece of land owned by the respondent.

~~~

Original questions:

- 1: Verificación si el dueño del pedazo de tierra es el mismo que ha regularizado la Cuenta del Milenio/PRODEP?
- 2: Este pedazo de tierra tiene mayor valor que cuando usted la adquirió?
- 3: ¿Realizó alguna nueva instalación/mejora en este pedazo o ha invertido en su tierras?
- 4: Si realizo alguna inversión, Especifique brevemente. Y detalle cual es el valor?
- 5: ¿Recibió una hipoteca o algún crédito de banco por tener el titulo/escritura publica registrada nueva?
- 6: Si responde SI en la Pregunta 5, Cuánto recibió?
- 7: Cuál es la situación legal de este pedazo de tierra?
- 8: Usted cree que otra persona fuera de su comunidad con más dinero o poder que usted, o un vecino podría quitarle ilegalmente su tierra.  
Esta pregunta se refiere a cualquier otro pedazo de tierra que tenga el encuestado.
- 9: Ha utilizado algún programa de mediación para resolver conflictos con su tierra?  
Esta pregunta se refiere a cualquier otro pedazo de tierra que tenga el encuestado.

## Annex D

### Nagarote Pilot Program Table of Costs

| Stages |                                 | Activities                                              | TOTAL (US\$)     |
|--------|---------------------------------|---------------------------------------------------------|------------------|
| 1.0    | Planning                        | 1.1 Implementing Unit                                   |                  |
|        |                                 | Staff                                                   | 70085            |
|        |                                 | Operations Costs                                        | 6799             |
|        |                                 | Vehicles                                                | 42046            |
|        |                                 | Office Equipment                                        | 19450            |
|        |                                 | Computer Equipment                                      | 17092            |
|        |                                 | Electrical Equipment                                    | 5000             |
|        |                                 |                                                         | 160471           |
| 2.0    | Preparatory Tasks               | 2.1 Taking Aerial Photographs                           | Investment       |
|        |                                 |                                                         | 14250            |
|        |                                 | 2.2 Preparation of Data Base - INETER                   |                  |
|        |                                 | Staff                                                   | 4485             |
|        |                                 | Operations Costs                                        | 1097             |
|        |                                 |                                                         | 5582             |
|        |                                 | 2.3 Preparation Data Base - Registry                    | 0                |
|        |                                 | 2.4 Preparation Data Base - IP                          | Operations Costs |
|        |                                 |                                                         | 4500             |
|        |                                 | 2.5 Consultation with Municipalities                    | Operations Costs |
|        |                                 |                                                         | 765              |
|        |                                 | 2.6 Photogrammetric Restitution                         |                  |
|        |                                 | Staff                                                   | 15208            |
|        |                                 | Operations Costs                                        | 1264             |
|        |                                 |                                                         | 16471            |
| 3.0    | Promotion Campaign and Roll Out |                                                         | 21974            |
| 4.0    | Cadastral Sweep                 |                                                         | 0                |
|        |                                 | 4.1 Cadastre                                            | 0                |
|        |                                 | Staff                                                   | 91085            |
|        |                                 | Operations Costs                                        | 38526            |
|        |                                 | Vehicles                                                | 42046            |
|        |                                 | Office Equipment                                        | 8402             |
|        |                                 | Computer Equipment                                      | 58649            |
|        |                                 | Engineering Team                                        | 73095            |
|        |                                 |                                                         | 311802           |
|        |                                 | 4.2 Geodesic Network                                    | Operations Costs |
|        |                                 |                                                         | 0                |
| 5.0    | Public Exposition               | Operations Costs                                        | 323              |
| 6.0    | Regularization                  | 6.1 Diagnostic y Development of the Regularization Plan |                  |
|        |                                 | Operations Costs                                        | 570              |

|     |                            |                    |                |
|-----|----------------------------|--------------------|----------------|
|     |                            |                    | 0              |
|     | 6.2 Reformed Sector        |                    | 0              |
|     |                            | Staff              | 71806          |
|     |                            | Operations Costs   | 2000           |
|     |                            | Vehicles           | 21023          |
|     |                            | Office Equipment   | 7416           |
|     |                            | Computer Equipment | 27224          |
|     |                            |                    | 129468         |
|     | 6.3 Non-Reformed Sector    |                    |                |
|     |                            | Staff              | 8779           |
|     |                            | Operations Costs   | 1469           |
|     |                            | Vehicles           | 21023          |
|     |                            | Office Equipment   | 3630           |
|     |                            | Computer Equipment | 5151           |
|     |                            |                    | 40051          |
|     | 6.4 Conflict Mediation     |                    |                |
|     |                            | Staff              | 32070          |
|     |                            | Operations Costs   | 15145          |
|     |                            | Office Equipment   | 13572          |
|     |                            | Computer Equipment | 11511          |
|     |                            |                    | 72299          |
| 7.0 | Municipality Strengthening |                    |                |
|     |                            | Staff              | 5733           |
|     |                            | Operations Costs   | 3855           |
|     |                            | Office Equipment   | 823            |
|     |                            | Computer Equipment | 4150           |
|     |                            | Engineering Team   | 3619           |
|     |                            |                    | 18180          |
| 8.0 | Quality Assurance Unit     | Staff              | 9900           |
|     |                            | Operations Costs   | 3652           |
|     |                            | Vehicles           | 21023          |
|     |                            | Office Equipment   | 10745          |
|     |                            | Computer Equipment | 31082          |
|     |                            |                    | 76401          |
| 9.0 | Implementation of SIICAR   |                    | 0              |
|     | <b>TOTAL</b>               |                    | <b>873,108</b> |

**Source:** Kevin Barthel, MCC Land Lead