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Impact Evaluation of Site-specific Activities under the Land Tenure Services Project: Report of the Baseline Survey Conducted in Two Urban Areas in Northern Mozambique

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Glossary

| | |
|----------------|---|
| AFRE | Department of Agricultural, Food and Resource Economics |
| CARRS | Department of Community, Agriculture, Recreation and Resource Studies |
| CENACARTA | National Center for Cartography “ <i>Centro Nacional de Cartografia e Teledetecção</i> ” |
| CsPro | Census and Survey Processing System |
| DEFF | Design effect |
| DiD | Difference-in-difference |
| DNTF | National Land and Forest Directorate |
| DUAT | “ <i>Direito de Uso e Aproveitamento de Terra</i> ” or Land Use Right (an official document provided by the land administration office providing formalized, long-term use rights for a specific land parcel) |
| EA | Enumeration Area |
| HHDS | Household Dietary Diversity Score |
| hh | Household |
| HTSPE | International Consultancy Company (acting as Service Provider) |
| IE | Impact Evaluation |
| INE | National Institute of Statistics |
| LIMS | Land Information Management System |
| MCA | Millennium Challenge Account |
| MCC | Millennium Challenge Corporation |
| MDES | Standardized Minimum Detectable Effect Size |
| MINAG-DE | Ministry of Agriculture-Department of Economics |
| MSU | Michigan State University |
| M ² | square meters |
| Mt | Meticals (Local currency) |
| NLPAG | National Land Project Advisory Group |
| PPS | Probability proportional to size |
| PSU | Primary Sampling Units |
| TIA | National Agricultural Survey |
| SPSS | Statistical Package for the Social Sciences |
| SRS | Simple Random Sampling |
| STATA | Data Analysis and Statistical Software |

EXECUTIVE SUMMARY

The Government of the Republic of Mozambique and the Millennium Challenge Corporation (MCC), on behalf of the United States Government, signed a Compact Agreement, effective September 22, 2008 for a US \$507 million grant, implemented over a 5-year period. The overall objective of the Program is to reduce poverty through economic growth in four Northern Provinces (Niassa, Cabo Delgado, Nampula, and Zambézia). As part of this broader initiative, the Land Tenure Services Project (or the *Land Project*) aims to establish more efficient and secure access to land by improving the policy and regulatory framework and helping beneficiaries meet their immediate needs for registered land rights and better access to land.

This report describes the impact evaluation design of activities related to ‘improving land access in urban hotspot areas.’ The site-specific interventions in priority bairros within Nampula city and Monapo vila are the subject of this impact evaluation. Activities to be evaluated include: a) Satellite mapping and inventory exercise; b) Capacity building of the local cadastral offices; c) Piloting a sound approach to area-wide registration of land rights.

The plan is to use a non-experimental *comparison group difference-in-difference* (DiD) design approach for this evaluation. Data will be collected at household level from both the treatment and control areas before and after the intervention. This report presents the results of the baseline survey conducted in 2010-11 of 1690 households –881 in Nampula city and 809 in Monapo vila. The results of the baseline data analysis presented in this report provide a picture of the status of surveyed households in study areas of Nampula city and Monapo vila across three broad categories: a) socio-economic characteristics (i.e., demographics, sources of income, asset holdings, and access to credit; b) land characteristics (i.e., land ownership, land markets, land investments, perceptions on tenure security and knowledge about land law and rights); and c) welfare characteristics (i.e., level of income, consumption and expenditure).

Socioeconomic and welfare characteristics of surveyed households

Results of the survey indicate that the head of the household in the study area, on average, is 41 years old, has 83% chance of ever attending a school and 77% chance of being literate. The typical respondent household has five to six members, with half of them less than 15 years of age. Approximately 27 percent of the households are headed by females. Despite the study area being urban/peri-urban, more than 80% of the households are engaged in agricultural activities. About 50% of the households derive income from self-employment, 24% from some type of salaried employment, and 22% from remittances. A household in the study area typically spends on average about 4,000 Mt/month (or \$143) on food and about 2,200 Mt/month (or \$80) on non-food expenses. This translates to a total expenditure per capita per day of 46 Mt or \$1.66 (in \$PPP). Based on the reported total expenditures, about 30-40% of people in the study area fall below the poverty line as defined by the national (16.7 Mt/day/person) and international measures (PPP \$1.25/day/person). This estimated rate of headcount poverty in the study area is significantly less than the national estimates of poverty headcount in urban areas of 50%.

About 7% of the households in the study area had applied for credit in the past 12 months with an acceptance rate of 81%. Those that were denied the loan, ‘insufficient collateral’ was cited as

a reason by 27% of the respondents. For those that wanted credit but did not apply, reasons most cited were ‘concerned about not being accepted,’ ‘lack of access,’ and ‘lack of collateral.’

In many ways, the treatment and control areas share similar characteristics (e.g., key demographics features, access to credit), but in other ways they are significantly different (assets, food consumption, expenditures). In terms of assets and food consumption the respondents in the treatment group are relatively better off. But in terms of expenditures and headcount poverty, the data show the advantageous position held by respondents in the control area.

Land ownership, land markets and perceived tenure security

A household in the study area typically has 2 land parcels--1.6 belonged to them and were in their possession, 0.1 was rented out, and 0.3 rented from others. Eighty percent of the land parcels in the study area are used for residential purpose and 20 percent for agriculture or other commercial purposes. The average size of a residential parcel is almost 600 m², which is one-tenth the size of an average agricultural parcel (6,235 m²) in the study zone. A majority of the residential parcels have access to tap water (60%) and a mobile phone network (89%). Forty five percent of residential land parcels have electricity, and 42% have access to a tertiary road and 23% to an unpaved road.

More than 50% of the land parcels in the study area were acquired through purchase, which was the most common mode of acquisition. The average cost of acquiring a land parcel in the study zone was about 7,000 Mt or 23 Mt/m². Almost two-thirds of the land parcels located in the study zones has no documents that give the owners property rights to that parcel. For those that have some document, the most common was an affidavit of purchase/sales. Only 12 parcels in the entire sample had obtained a DUAT by the time of the baseline survey and about 50 parcel holders had initiated the process of obtaining a DUAT. However, 87% of parcel owners were interested in obtaining a DUAT and were willing to pay on average about 320 Mt for that transaction.

The hypothetical average sale price of land parcel in the study area was reported to be about 300 Mt/m² for residential plots and 48 Mt/m² for agricultural plots. Similarly, the hypothetical average monthly rental price for a land parcel in the study zone was reported to be about 25 Mt/m² or about 5,200 Mt for the whole parcel.

A large number of respondents did not respond to the question on whether they experienced any conflict in the past. However, in terms of potential land conflicts in the future, 18% of all parcel holders perceived to have potential land conflict in the future, mostly with formal authorities (43%) or neighbors (32%), and considered lack of DUAT (33%) and boundary errors (28%) as the main causes of conflict in the future. Also, more than 25% of respondents considered the risk of losing the parcel due to conflict to be very high, and another 12% considered that risk to be moderately high. Only 6% of the respondents perceived no risk of losing their land due to conflict. In terms of respondent's opinion about the effect of DUAT on conflicts and expropriation, a majority believed that demarcation/DUAT will make disputes more likely to be resolved (54%), will reduce the risk of expropriation of land (94%), and make the expropriation of land more transparent (93%).

In terms of the perceived effect of DUAT on the value of a parcel, a predominate majority (94%) reported the value to increase after having a DUAT. Similarly, about 57% of households were willing to pay more to purchase a parcel with DUAT than without DUAT, as against 35% who would be less willing to pay more. On the other hand, 50% of households indicated that they would be more willing to rent out their land if it had DUAT as against 42% that would rent out less with a DUAT.

The study area is characterized by a thin rental market. Of the total number of parcels surveyed in the study area, 12% were either rented-in (8%) or rented out (4%). About one-third of the rental transactions were among relatives and two-thirds involved non-relatives. Only 7% of parcels rented-in involved a contract, whereas 28% of parcels rented out were based on a rental contract. Correspondingly, only 17% of parcels rented-in involved cash payment as against 88% of parcels that were rented out. The average monthly rental rate across all rented parcels in the study area was reported to be 6 Mt/m² (or 407 Mt for the whole parcel) for the residential plots and 0.12 Mt/m² (or 4,687 Mt for the whole parcel) for agriculture plots.

About 28% of households reported making at least one type of investment on land in the 12 month prior to the survey, which affected 4% of all the parcels documented in the study area. The most common type of investment related to electricity, repairs of roof, and construction of new building/house. On average, the households in the study area spent about 100,000 Mt in the past 12 months on repairs, rehabilitation, and upgrades on their land. Two-thirds of the households indicated that they would be more likely to make improvements/investments on their land if they had DUAT. The opinion on the use of land as a collateral for credit if it had DUAT was rather mix, with 28% more likely to use it for that purpose but 17% more unlikely to do so. If the household would use the land as collateral, more than 50% indicated that they would use the credit for business purpose, 27% would use it for agriculture and 19% would use it for improvements/expansion of their existing property.

In general, the knowledge about the land law was found to be poor in the study area. Only 13% of households reported to be informed about the 1997 land law. Of those who were informed about the law, only 12% know fair amount about the law, and 76% know very little and 8% knew nothing about the content of the law.

As against the demographic characteristics of the households, the treatment and control areas in the Nampula and Monapo vila are very dissimilar in terms of parcel characteristics, behavioral variables related to land (e.g., investment, rental, sales), perceptions and opinion about land conflict and risks of expropriation, and knowledge of land law. On several of these key variables, the parcels and parcel holders differ significantly. The non-experimental nature of the research design has thus resulted in underlying incongruence between the two groups that lead to the observed differences.

In conclusion, the baseline survey provides extensive information about the land economy in the two urban hotspot areas in Nampula. At this time, the best use of the data is to create a description of the treatment and comparison groups. Following the second round of the survey, it should be possible to draw substantiated conclusions about the impact of land regularization intervention (that will result in more number of parcels with DUATs) on the parcel holders.

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**Impact Evaluation of Site-specific Activities under the Land Tenure Services Project:
Report of the Baseline Survey Conducted in Two Urban
Areas in Northern Mozambique**

1. Introduction

Mozambique has a population of more than 20 million inhabitants, approximately 70 percent of whom are located in rural areas and 30 percent in urban areas. Emerging from a sixteen-year civil war in 1992, Mozambique has grown rapidly. Despite Mozambique's rapid macro-economic growth, half of the Mozambican population still lives in poverty, many in the Northern region and in rural areas. Given Mozambique's rapid urbanization, the country's next stage of economic recovery cannot succeed without well-functioning public services in its cities.

In June 2007, realizing the need and importance for increasing the productive capacity of the population in Northern Mozambique, the Millennium Challenge Corporation (MCC) signed a five-year, \$506.9 million compact with the Republic of Mozambique with the intended impact of reducing the poverty rate, increasing household income and reducing chronic malnutrition in the targeted districts. As part of this five year Compact (which entered into force in September 2008), the Land Tenure Services Project (or simply the 'Land Project') aims to establish a more efficient and secure access to land by improving the policy framework; upgrading land information systems and services; helping beneficiaries meet immediate needs for registered land rights; and better access to land for investment. The Land Project's objectives are 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. Investments are targeted to all four Northern Provinces (Cabo Delgado, Niassa, Nampula and Zambezia), at all levels of administration – National, Provincial, and District / Municipal – and across a range of beneficiaries, including rural individual land holders, rural communities, urban land holders, and domestic and international investors.

Initiatives such as those by the Land Tenure Services project that aim to strengthen the property rights system are generally designed to result in clearly defined rights that are enforceable, transferable, and of appropriate duration and scope. An improved system should lower land-transaction costs, lower the risk of expropriation or conflict, and increase tenure security. In the medium or longer term, the system should contribute to more efficient land uses due to improved productivity, increased investment, and the development of land markets. More productive land should result in higher asset/land values and higher incomes for property owners. Over time, as land and financial markets develop formal land rights can also be used as collateral for loans.

Empirical studies suggest that impacts of land tenure projects vary considerably from country to country, depending on market development, financial institutions, legal frameworks, and beneficiary income. Land tenure reform has demonstrated impacts for economic growth that reaches the poor, but can have socially differentiated impacts that need to be measured and monitored. Monitoring and evaluation is thus essential for a results-based approach to program management. A detailed M&E plan has already been developed by the Millennium Challenge Account-Mozambique (MCA) and MCC to monitor the various Projects to determine whether

they are achieving their intended results and measure their larger impacts over time through rigorous evaluations (MCA-Mozambique 2010). In addition to performance monitoring activities that measure implementation progress and intermediate results, MCC is also committed to conducting independent impact evaluations of its programs as an integral part of its focus on results. These impact evaluations aim to measure the changes in individual, household or community income and well-being that result from a particular project or program. The distinctive feature of an impact evaluation (as versus performance monitoring or project evaluation) is the use of a counterfactual, which identifies what would have happened to the beneficiaries in the absence of the program. This counterfactual is critical to understanding the improvements in people's lives that are directly caused by the program.

For the external impact evaluation of the Land Project, MCC and MCA have partnered with Michigan State University and the Ministry of Agriculture Department of Economics (MINAG-DE), respectively, to implement the evaluation. The partnership is unique because of MSU's longstanding research and analysis capacity building initiative with MINAG-DE. MSU has had a dedicated in-country team assigned to MINAG-DE since 1992 and it has been contracted by MCC to design the impact evaluation for the Land Project, assist MINAG-DE in carrying out the baseline and follow-up surveys for MCA, conduct regular field visits for quality control and technical guidance, carry out data analysis, and write up results. This Report serves as one of the outputs of this collaboration between MSU and MINAG-DE towards the impact evaluation of the Land Tenure Services Project in Mozambique. The report first outlines the overall impact evaluation strategy for the Land Project, which is comprised of three components—an evaluation of site-specific activities in urban hotspot areas, an evaluation of site-specific activities in rural hotspot areas, and the evaluation of the overall policy monitoring and capacity building activities. A bulk of this report then focuses on the first of these three components and describes the impact evaluation design, including the sampling methodology used for the site-specific activities in urban 'hot spot' areas, and reports the results of the baseline survey conducted in 2010-11 in two urban areas—Nampula city and Monapo vila. The baseline surveys reported in this document will serve as a basis for estimating the impacts of 'site specific activities in urban hotspot areas' after a follow-up survey is completed in 2013.

2. Impact Evaluation Strategy for the Land Project

The Land Project in Mozambique is comprised of three mutually reinforcing pillar activities:

- Policy Monitoring Pillar (Pillar I): Improve the policy environment by addressing implementation problems with the existing land law, conducting regulatory reviews to improve upon it, and supporting training for predictable, speedy resolution of disputes;
- Capacity Building Pillar (Pillar II): Build the institutional capacity to implement policies and to provide quality public land-related services by investing in human and information resources; and
- Site-specific Pillar (Pillar III): Facilitate access to land use by helping individuals and businesses with clear information on land rights and access and with registering their grants-of-land use.

The Land Project will be evaluated using rigorous, quasi-experimental design methods and will address impacts of these three Project ‘Pillars’ through three independent evaluations as described below.

Evaluation of the Policy Monitoring Activity (Pillar I) and Capacity Building Activity (Pillar II):

The coverage and scope of project activities under these two pillars ranges from national (i.e., Pillar I) to four northern provincial and district/municipal level (Pillar II). Pillar I includes activities such as: outreach and education on the 1997 Land Law; the development of institutional structures for land administration; formation of Land Policy Consultative Forum; providing technical and logistical support to monitor progress on land legislation; undertaking broad campaign of public education, outreach and raising awareness of non-judicial dispute resolution methods; expansion of legal and judicial training programs; providing advisory services to *Direcção Nacional de Terras e Florestas* (DNTF); professional development and training of staff in the use of the Land Information Management Service (LIMS). Rigorous impact evaluation is not possible for these sets of activities because of their universal coverage.¹ Thus, impact of these activities on households will be assessed through the national *Trabalho de Inquerito Agrícola* (TIA) survey using a difference-in-difference approach. The 2008/09 TIA survey (which is representative at the provincial and national levels) includes questions about household knowledge of land security, transfers, access, and women’s rights to land. It also includes plot level information on land ownership. Results from the 2008/09 TIA will serve as the baseline and are the subject of a separate report submitted to MCA and MCC. After Pillars I and II activities are implemented, TIA will be carried out again throughout the country in 2013 and the same questions will be included in the follow-up. Results from 2013 will be compared with results from 2009 and between the Northern Provinces and the rest of the country to tease out the causal effects of policy and capacity building activities of the Land Project.

Institutional upgrading and technical assistance (Pillar II) will be targeted to Provincial, district, and municipal offices in the four Northern Provinces. The activities will include upgrading of district land service offices and technical assistance for cadastral development in municipalities. Like Pillar I, the evaluation team will use the TIA to test the impact of Pillar II activities. The 2008/09 TIA includes questions about land transaction types, frequency, and costs. Results from the 2008/09 TIA will serve as the baseline for these key indicators. After Pillar II is implemented, TIA will be carried out again throughout the country in 2013 and the same questions will be included in the follow-up. Following implementation of the 2013 TIA, key indicators in the Northern Provinces’ districts will be compared to districts across the rest of the country.

The description of this evaluation and results of the baseline TIA 2008-09 survey is the subject of another report to be submitted to MCC/MCA.

¹ Note, however, that the site specific activities (rural and urban hotspots) are in a way a cumulative sum of all these activities to be implemented because they are the smallest unit of geographic area affected by all the national, provincial, district and municipal level interventions (one built on the other). Thus in one sense, the cumulative impacts of these activities will be evaluated under the rigorous IEs of the hotspot areas.

Evaluation of Site Specific Access to Land (Pillar III): One of the major problems in the current land administration system in Mozambique is the lack of information available regarding actual land use and land use rights, natural resource distribution and existing resource rights. Pillar III of the Land Project deals with the compilation of land use and resource inventories, mapping and planning processes, and streamlining access to land in priority areas. It is focused on each of the 12 selected districts and 8 municipalities in the northern part of the country as depicted in Figure 1.

Two evaluations are planned to cover Pillar III activities related to ‘improving land access in hotspot areas’--one targeted to selected districts representing rural areas, and another one targeted to selected municipalities representing urban areas. Because Pillar I and II will also affect these areas, these evaluations will test the impact of receiving Pillars I, II and III versus just receiving Pillars I and II activities. The plan is to use a non-experimental *comparison group difference-in-difference* (DiD) design approach for these evaluations. Thus, both the evaluation designs will involve a control/comparison group of hotspots that do not receive the Pillar III intervention and data will be collected at household level from both the treatment and control areas before and after the intervention. The comparison hotspots will include areas very similar to the treatment hotspot area in important ways (demographics, poverty, land use, etc.) but which will not receive the intervention. The baseline survey in rural hotspots is currently underway and its results will be reported separately. The rest of this report is devoted to describing the impact evaluation of the urban area hotspots and presenting the results of the baseline survey conducted in 2010-11 towards this evaluation.

3. Impact Evaluation Design for the Site Specific Activities in Urban Hotspots

*3.1 Rationale for MCA investments in site specific activities under the Land Project*²

A fundamental goal of land tenure reform is to enhance people’s land rights and thereby provide tenure security. Land tenure has long been recognized by economists as ‘a public good’ just like education, health, safety and security. The nature and strength of property rights have a profound impact upon economic decision-making through their effects on expectations of returns on investment of labor and capital. This holds true in rural areas on customary land, in the informal sector and in urban areas. Tenure security is also determined by the extent to which governance systems recognize these rights and provide mechanisms for their enforcement.

The legal regime in relation to land tenure in Mozambique offers protection of land use rights (both for investment purposes and the rights acquired by existing occupiers of land) and, further, provides a framework within which informal acquired rights can be formalized, either as common holdings in the name of groups of occupiers or as individual land parcels. Both nationally and internationally, this has been recognized as a good policy framework. However, implementation has been slow and regulatory and cadastral functions are not affordable by the population at large.

² This section borrows heavily from MCC’s Land Tenure Services Final Report, February 2007.

According to the inception report by the land project implementing contractor, HTSPE, the current land and property administration systems in Mozambique handle only a very small proportion of the actual population land needs. Procedures are largely geared to meet the applications for formal DUATs for a limited section of the population – mostly consisting of investors. Demand, in comparison to the population and numbers of households is very low, either because of the perceived difficulty and high cost of obtaining a formal DUAT, or because the title itself and the laws that underwrite it are not sufficiently well understood by all land occupants. Accurate figures are difficult to obtain but it is estimated that not more than 2-3 percent of land holdings nationally have DUATs, with a high proportion of these being provisional DUATs. In rural areas, the report states that plots allocated directly through the state represent less than 7%, that customary systems are responsible for 42% of cases, simple occupation or self-service represent 41%, and the remaining 10% of the cases occurred through informal land markets. Access through customary systems or through simple occupation remains the predominant form of land acquisition in rural Mozambique district.

The underlying rights of existing occupants, if they do not have a formal DUAT are not registered or recorded. This means that sporadic applications may be made over existing rights. There is currently no formal land user rights registry system for the majority who already occupy the land and no provision for systematic registration. This is an important feature of current land administration in Mozambique and is the source of several of its problems.

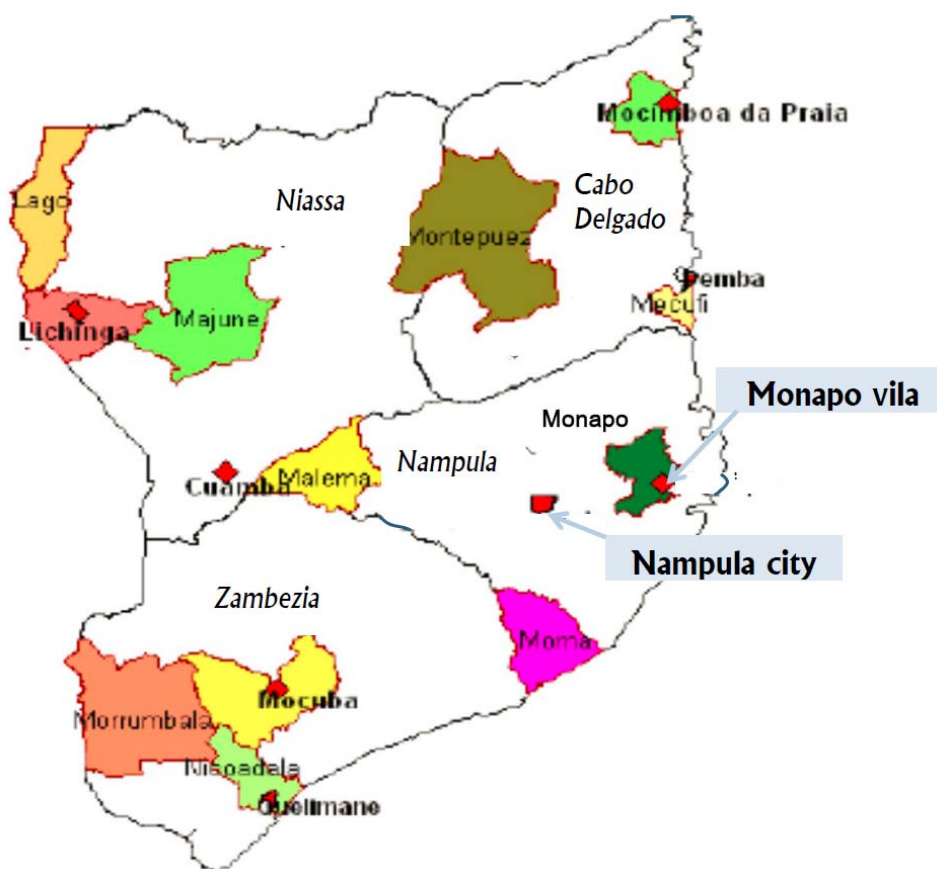
The Land Tenure Services Project under the MCA compact is designed to address many of these constraints and limitations of the land administration system in Mozambique against a background of a growing population, increasing demands for land for investment and a large and growing informal market in land. It is recognized that in order to guarantee rights of access to land and to reduce the bureaucracy associated with obtaining land title (i.e., DUAT), requires an efficient land administration system. It is this system as a whole that envisaged to play the primary role in increasing land tenure security and improving access to land. This requires significant technological and technical upgrades to provincial, district and municipal cadastral offices and there is a need for institutional strengthening and a reorientation of the land administration system in general to improve efficiency within the system. The site specific activities under pillar III of the Land Project are designed to address this need for streamlining procedures, developing and piloting approaches towards the rapid securing and formalization of land use rights and to build the capacity of relevant local authorities in implementing these procedures. The objective is to improve access to land in priority areas.

3.2 Project sites, scope of the activities and selection of sites for rigorous IE

The eight municipalities in the four Northern provinces depicted as small red spots in Figure 1 form the universe of intervention sites in urban areas for Pillar III activities. Within each of these eight municipality-governed urban areas, some areas (administratively known as ‘*bairros*’) have been identified as priority or hotspot areas where the focus will be to pilot a sound approach to area-wide registration of land rights. In each of these priority bairros, specific interventions are planned to address some hotspot issues related to expansion, requalification and regularization. The end goal of the intervention in selected hotspot areas (i.e., also referred as ‘site-specific

activities’) is the establishment of land titles through parcel demarcation. The impact evaluation described in this document is focused on assessing the impacts of ‘the establishment of land titles’ in urban priority/hotspot bairros in these selected eight municipalities.

Figure 1. Priority geographic areas of intervention for site-specific activities in four provinces in northern Mozambique under the MCA-Mozambique Land Tenure Services



Legend: small areas in red correspond to selected municipalities (total 8—Lichinga, Cuamba, Pemba, Mocimboa da Praia, Nampula city, Monapo vila, Mocuba and Quelimane) and areas in other colors correspond to selected districts (total 12—Mecufi, Mocimboa da Praia, Montepuez, Majune, Lago, Lichinga, Monapo, Moma, Melema, Nicoadala, Morrumbala and Mocuba) for Pillar III activities

The process that resulted in the identification of the eight municipalities for Pillar III activities and then the selection of priority/hotspot bairros within these selected municipalities was conducted by NLPAG (the National Land Project Advisory Group) with active involvement and participation of the local governments. A list of the eight municipalities and the selection criteria they meet for Land Project activities is given in Table 1. The priority areas (or *bairros*) identified for site specific activities within these eight municipalities are the smallest unit of project interventions of the Land Project in urban areas. As such, the impacts to be observed at the beneficiary level in these priority areas (or *bairros*) will be a cumulative sum of all the three pillar activities of the Land Project (i.e., policy, capacity building and site specific activities).

Table 1: Selection criteria met by the eight municipalities selected for Land Project activities in four Northern provinces

| | Criterion 1 | Criterion 2 | Criterion 3 | Criterion 4 | Criterion 5 | Criterion 6 |
|--------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Provincia da Zambézia | | | | | | |
| Quelimane-cidade | | | X | | | X |
| Mocuba-cidade | | X | X | | X | X |
| Provincia de Nampula | | | | | | |
| Monapo-Vila | X | X | X | | X | X |
| Nampula-cidade | X | | X | | X | X |
| Provincia de C. Delgado | | | | | | |
| Pemba-cidade | X | X | | | X | X |
| Mocimboa da Praia- vila | X | X | | | | X |
| Provincia do Niassa | | | | | | |
| Lichinga-cidade | X | X | X | | | X |
| Cuamba-cidade | X | X | X | | | X |

Key for Criteria: 1 = high demand for DUATs; 2 = government priority; 3 = local technical capacity exists; 4 = support from other sources (financial and human); 5 = land use plans exist; 6 = high risk of land conflicts.

Since, collecting primary survey data from all eight hotspot areas was resource intensive and not practical, it was mutually decided by MCC/MCA and MSU to conduct the rigorous impact evaluation of the ‘site-specific land intervention’ only in two urban hotspot areas. It was also decided that the focus of the IE will be to evaluate the impacts of interventions targeted on hotspot issue of requalification / regularization and not expansion. Thus, two municipal areas of Monapo vila and Nampula city (prominently identified in Figure 1) were selected for this rigorous impact evaluation based on the following criteria:

- Large numbers of bairros facing the same hotspot issue in a given municipality
- Ability to identify comparison bairros to estimate the effects of the intervention in a rigorous and robust manner
- Indication that project interventions in hotspot areas are planned earlier in MCA’s 5-year implementation plan (to ensure enough time to observe outcomes and impacts).

The geographic coverage includes three priority bairros in Nampula city and six priority bairros in Monapo vila (Table 2). These were selected and prioritized by the municipalities based on some set criteria and were outside the control/influence of the impact evaluation team.

Table 2. Project intervention bairros for “hotspot” site specific activities under Pillar III

| Nampula City | Monapo vila |
|---------------------|--------------------|
| Muhala – Sede | Mucaca |
| Namutequeliua | Mecutane |
| Muahivire | Topelane |
| | Moagem |
| | Boa Viagem |
| | Metoprime |

In the context of urban areas, the interventions planned in selected municipalities include support to the formalization of land use rights in informally settled areas, the systematic planning of

development areas and the parceling of land plots for subsequent attribution. It also includes the development of civic education materials and communication initiatives at local level (including seminars, workshops and public hearings) and support to local authorities in providing the public with up-to-date information on the land use and land tenure status of particular areas. The site-specific interventions in priority bairros that are subject of this impact evaluation include following activities which are implemented with technical assistance from service providers such as CENACARTA, and implementing partners (HTSPE and Verde Azul):

- a) The satellite mapping and inventory exercise
- b) Capacity building of the local cadastral offices
- c) Piloting a sound approach to area-wide registration of land rights

3.3 Research questions addressed by the IE

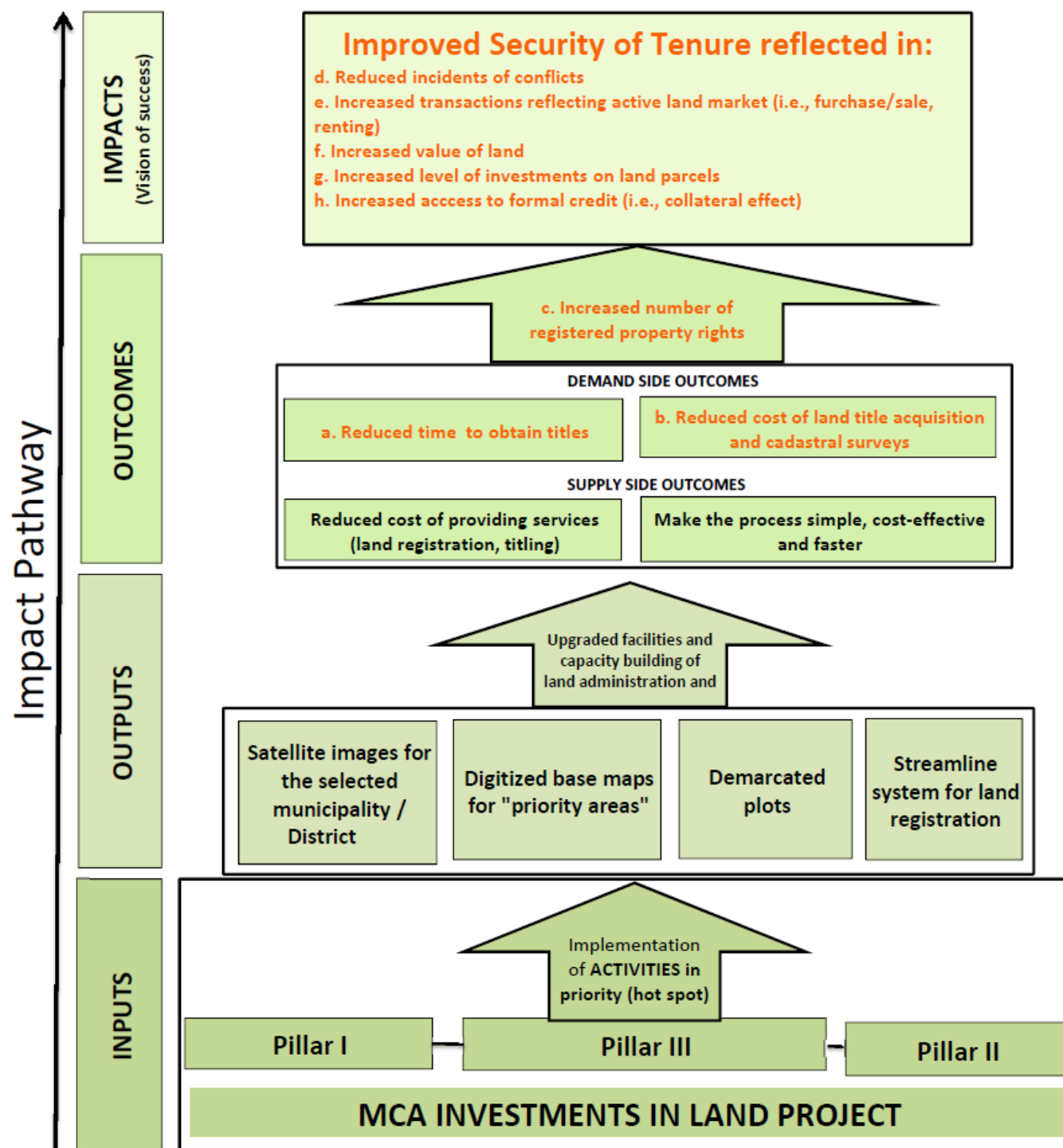
The goal of these interventions is to make the land administration units (i.e., the cadastral offices) in the selected municipality (in this case, Monapo vila and Nampula city) more efficient and well-prepared in meeting client needs (i.e., put in place procedures / infrastructure to reduce time and cost for potential clients to obtain land title acquisition and cadastral surveys). The implicit assumption is that the streamlined and improved systems of accessibility, recording, storage and service delivery for land administration and the cadastre, will bring increased demand on those, more efficient, services. Increased demand will in turn trigger improved service outlets, and commensurate changes in institutional arrangements. This will in turn clarify existing rights in land through a clearer and more accurate system of recording and registering rights and reduce the current conflicts in land.

The expected outcomes of this intervention are that this will increase the number of land users registering their lands and consequently increasing productive activities on those parcel of lands, and generating positive benefits in terms of increased income and economic growth in the region. The impact pathway hypothesized for this intervention is summarized in Table 3. Initiatives to strengthen the property rights system as envisaged in Nampula city and Monapo Vila are generally designed to result in clearly defined rights that are enforceable, transferable, and of appropriate duration and scope. An improved system should lower land-transaction costs, lower the risk of expropriation or conflict, and increase tenure security. In the medium or longer term, the system should contribute to more efficient land uses due to improved productivity, increased investment, and the development of land markets. More productive land should result in higher asset/land values and higher incomes for property owners. Over time, as land and financial markets develop formal land rights can also be used as collateral for loans.

Empirical studies suggest that impacts of land tenure projects vary considerably from country to country, depending on market development, financial institutions, legal frameworks, and beneficiary income. Land tenure reform has demonstrated impacts for economic growth that reaches the poor, but can have socially differentiated impacts that need to be measured and monitored. The purpose of the rigorous IE design for the two urban hotspot areas is to precisely measure and monitor these impacts and assess the causality in effects outlined in the impact pathway. The key research questions guiding our design of the evaluation for urban hotspot activities in Nampula City and Monapo Vila are to evaluate the extent to which there is evidence

of change in indicators of outcomes and impacts identified in Figure 2 (in red font) that can be attributed to the Land Project.

Figure 2. Impact pathway (or the logic framework) for site-specific intervention in priority barrios (i.e., to address the hotspot issue related to requalification/regularization)



Source: Authors' compilation

3.4 Impact evaluation method and approach

By conducting an impact evaluation of the Land Project activities in two urban priority areas of Nampula and Monapo we intend to quantitatively estimate the change in the situation of the population due to the cumulative execution of all the activities under the Land Project (national, provincial, municipal and bairro levels). Thus we plan to compare the outcome of the targeted population in the presence of the program relative to the population's outcome if the program had not been implemented. In other words the basic principle that guides our approach is the comparison between situations "with" the project activities and "without" the project activities, also known as "treatment effect". This is as opposed to merely comparing beneficiaries "before" and "after" the project implementation (i.e. assessing the change in the situation of the beneficiary between before and after simply assessing the difference between participants and non-participants). Unfortunately, it is not possible to compare the same population in both the states--with and without the program exposure.

Practically, to address this problem, we estimate the average impact of the program on a group of individuals by comparing them to a similar group of individuals that are not directly affected by the program. Therefore, one critical step of any impact evaluation exercise is to establish a credible control group. A number of different empirical approaches have been employed to establish the credible comparison group (or control group). The most robust approach is randomization – in which the treatment group and control group are randomly selected from all the eligible sampling units (either clusters or individuals). A randomized experiment guarantees that there are no differences in the observed and unobserved characteristics (on average) between the treatment and control group and thus, a statistically significant difference in outcomes between the two groups can be attributed to the program.

However, given the fact that the intervention bairros (or the treatment bairros) listed in Table 2 were already selected by project implementers there was no scope of random assignment. Thus, we plan to adopt a non-experimental *comparison group difference-in-difference* (DiD) design approach. Under this approach, units of observations (i.e., households) from the treatment bairros (i.e. all or a sub-set of bairros listed in Table 2 that receive project intervention before year 5) will be matched to units of observations from other bairros (that will not be receiving the project intervention by year 5) that are from the same municipalities and share similar hotspot issues and outcomes will be compared between these two groups before and after the intervention. Examining how outcomes change for households in the comparison group, who were not exposed to area-wide registration of land rights, will inform us about how those outcomes would have changed in the absence of the intervention for the treatment group.

The DiD approach essentially measures the difference of outcome indicators between participants (treatment group) and nonparticipants (comparison group) before and after program intervention. In the context of panel data (with a baseline survey and a follow up survey of the same households), DiD is a common and valid method to estimate the impact of an intervention if the assumption that unobserved heterogeneity is time invariant and uncorrelated with the treatment effect is satisfied. While the main advantage of DiD is its ability to allow for selection on unobserved factors, its assumption of constant selection bias over time may be unrealistic in practice.

Let Y be the outcome of interest (etc. land investment, land market participation, household income, off-farm employment, etc.). Our goal is to evaluate the impact of a specific intervention T (i.e., issue DUAT to urban residents) on Y after a time period 1. Specifically, we can achieve this evaluation through DiD as:

$$DD = E[Y_1^T - Y_0^T] - E[Y_1^C - Y_0^C] \quad (1),$$

where the superscripts T and C refer to treatment and control households, respectively; the subscripts 1 and 0 refer to time period 1 (after the intervention) and time period 0 (the baseline period), respectively; T=1 refers to Treatment group. The regression counterpart of (1) is the following:

$$Y_i = \alpha + \beta T_i + \gamma t + \delta(T_i * t) + \varepsilon_i \quad (2)$$

Where T_i is the dummy to distinguish treatment group ($T=1$) from control groups ($T=0$), t is a time dummy ($t=0$ for before treatment and $t=1$ for after the treatment). In (2), we can further add other control variables (X) to increase the efficiency of the estimation. DiD is widely used in impact evaluation of policy interventions especially when the experimental data are not available (see discussion by Duflo, Glennerster and Kremer 2007; Ravallion 2005). The DiD approach was also used by similar studies on land titling projects in other countries (Deininger et al. 2011, Di Tella 2007; Field 2007).

3.5 Identifying the comparison communities and data collection plan

There are two things needed to implement the DiD IE design:

1. Identification of treatment and comparison sites, and
2. Data collection from both treatment and comparison sites before and after intervention.

The prioritized bairros listed in Table 2 are the potential pool of treatment sites for this IE. The units of impact observation will be households. Thus, households within the boundary of these listed bairros serve as the treatment group. If the time line for implementing the interventions in prioritized hotspots was such that project implementer could have staggered the implementation across these bairros over time, ideally, we could have implemented a ‘pipeline’ design whereby the order of project intervention across prioritized bairros could have been randomized. In that scenario, bairros randomly assigned to receive intervention in the first year could have served as treatment and bairros randomly assigned to receive the intervention in year 5 could have served as control. However, based on the discussions with municipal staff and project implementing partners, it is clear that a pipeline design is not feasible for these two selected municipalities. The reason is that the intervention bairros have been already prioritized from among a pool of all potential bairros in the municipality, and in the case of Monapo they have been assigned a priority order.

Given this reality, we are using the following strategy in each of these two municipal areas to ensure we have sufficient number of comparison households to implement the DiD design.

For Nampula, the strategy is to select two additional bairros (Muatala and Mutauanha) that are facing the same hotspot issue but is not in the priority list. Baseline data will be collected from all five bairros—the three priority bairros and two non-priority bairros. Any bairro that does not receive the intervention by Year 5 (before the follow-up survey), will also serve as an additional comparison site for the IE.³

For Monapo, we are following a similar strategy but the numbers are different. We have selected following bairros (which are all peri-urban) to serve as comparison bairros.⁴

Mulotine
Nachicuva
Naheruque
Micolene
Nova Cuamba

In addition, if any of the seven priorities bairro does not receive intervention before the follow-up survey planned in year 5, then that bairro will also serve as a comparison bairro. Thus, the IE plan consists of conducting baseline and follow-up surveys in five bairros (3 priority + 2 extra) in Nampula and 11 bairros (6 priority + 5 extra) in Monapo.

4. Survey Design: Sample Size, Sample Selection and Data Collection Method

4.1 Sample size

The power of the design is the probability that, for a given effect size and a given statistical significance level, we will be able to reject the hypothesis of zero effect. Sample sizes, as well as other design choices, will affect the power of an experiment. To estimate the total sample size for this IE design, we treat Nampula city and Monapo Vila as two independent evaluations, but both addressing the same impact questions for similar interventions. For each of these two urban areas, we follow the steps described below (and elaborated in Table 3) to estimate the total sample size.

In step 1, we applied the power calculation based on a simple random sampling method using the formula in equation 3 to estimate the minimum required sample size for Nampula city and Monapo Vila based on the following parameter values: a power (k) of 80% (i.e., $t_{1-k}=0.84$), a significance level (α) of 0.10 ($t_{\alpha/2}=1.65$), and portion of subjects allocated to treatment group ($P=0.5$), and a standardized minimum detectable effect size (MDE), $m=(MDE/\sigma)$ of 0.25.

³ Given the large size of each bairro in Nampula, it is likely that it may take more time to complete all the intervention activities in four bairros. If the interventions are undertaken in a sequence and it takes an average one year to complete one bairro, then this scenario is potentially possible.

⁴ Ideally, we would have preferred an evaluation design that had a mix of urban and peri urban bairros in both the treatment and control sites. However, since the municipality has already selected priority bairros (which are all urban bairros) and the order in which they will be treated, we are left with only peri-urban bairros for control group.

$$n = \left\lceil \frac{(t_{1-k} + t_{\alpha/2})^2}{m^2 * P(1-P)} \right\rceil \quad (3)$$

Equation (3) is basically the same as equation (7) in Duflo et al. (2007). The only difference is that we use to solve for sample size rather than for MDE and the m in equation 3 is the standardized MDE (i.e., minimum detectable effect size divided by standard deviation).

The estimated minimum sample size based on this formula and the given parameter values noted above came to 397 for each city (Table 3). Table 4 shows how the sample size would change under different parameter values to achieve the power of 90%. For example, the number would change to 413 if we change P to 0.6. Alternatively, with $P=0.5$, the sample size estimate is 501 if we change α to 0.05. The corresponding number of observations for $\alpha=0.10$ (or 0.05) would further increase to 620 (or 780) if we set m at 0.2 instead of 0.25.

Table 3: Steps used in estimating the sample size for the IE design

| Steps | Parameters | Nampula | Monapo Vila |
|---|---|------------|-------------|
| 1: Apply “Simple Random Sampling” method | Power (k) of 80% | 80% | 80% |
| | Significance level (α) | 0.10 | 0.10 |
| | Portion of subjects allocated to treatment group (P) | 0.5 | 0.5 |
| | Standardized minimum detectable effect size (MDE), $m=(MDE/\sigma)$ | 0.25 | 0.25 |
| | Estimate of minimum sample size (SRS) | 397 | 397 |
| 2: Adjust for the design effect | Design effect (DEFF) | 2.0 | 2.0 |
| | Effective sample size = SRS * DEFF | 794 | 794 |
| 3: Adjust for attrition from baseline to follow-up survey | Attrition factor | 13% | 11% |
| | Adjusted sample size = Effective sample size * (1+ attrition rate) | 897 | 881 |
| | Sample Size (Rounded off) | 900 | 880 |

Table 4: Sample size required to achieve the power of 80% under different parameter values

| P | 1-P | (MDE/ σ)=0.25 | | (MDE/ σ)=0.20 | |
|------|------|-----------------------|---------------|-----------------------|---------------|
| | | $\alpha=0.10$ | $\alpha=0.05$ | $\alpha=0.10$ | $\alpha=0.05$ |
| 0.50 | 0.50 | 397 | 501 | 620 | 780 |
| 0.60 | 0.40 | 413 | 523 | 681 | 861 |
| 0.65 | 0.35 | 436 | 551 | 646 | 816 |
| 0.70 | 0.30 | 472 | 597 | 738 | 933 |

In reality, as a means of saving money, the simple random sampling is rarely used because it requires the researcher to sample across all geographic areas within the domain. Thus, cluster sampling is more common than a simple random sampling approach. In this IE design, we also plan to follow this practical approach and sample households from a sub-set of enumeration areas (EAs) within a given bairro. This cost saving measure, however, does reduce the confidence level of the estimates for a given sample size. This loss of effectiveness by the use of cluster sampling, instead of simple random sampling (SRS), is the **design effect**, defined as the ratio of the actual variance under the sampling method actually used, to the variance computed under the assumption of simple random sampling.

In general, using a cluster sample generally requires either a larger sample size than a simple random sampling or using a wider confidence interval. The design effect is used to determine how much larger the sample size or confidence interval needs to be. The main components of the design effect are the intraclass correlation, and the cluster sample sizes. Given the fact that we are potentially interested in many outcome variables in this IE design and the data requirement at the EA level from previous surveys to estimate the intra class correlations for all the outcome indicators, which were not available to us, we used a simplistic approach of assuming the design effect to be 2.0. Most studies in the literature report a design effect in the range of 1 to 3⁵ (Shackman 2001); so this assumption of a design effect = 2 is not unrealistic.

In second step, the estimated sample size from SRS was multiplied by the design effect (2.0) to get an effective sample size (Table 3). However, given the potential attrition rate for the longitudinal survey, in step 3 we increased the sample size for both the urban areas in the baseline survey by a factor of 13% for Nampula (which is more urbanized) and 11% for Monapo (which is peri-urban and more rural). The end result of all the three steps is an estimated total sample size of 900 households for Nampula city and 880 households for Monapo Vila (Table 3). These are the target sample size for the IE design in the two urban hotspot priority areas.

4.2 Sampling method

Once the sample size was determined as described above, the actual selection of the sample of households is done as described below. The sampling frame for the purpose of this IE is defined as “households that have land in the given municipality.”

A two-stage sample design was used for selecting the households for the survey in most bairros. The sampling frame was based on the data and cartography from the 2007 Mozambique Census. The primary sampling units (PSUs) were defined as the enumeration areas (EAs), which are operational segments defined for the census enumeration. The EAs have an average of about 100 households each, which is an effective size for conducting a new listing of households in the sample EAs. The sampling frame is updated through the listing in sample EAs to represent the current population of each bairro. The instrument used in the listing exercise is provided in Annex 1.

⁵ Some studies also report design effects less than 1 and more than 3.

In each of the smaller bairros of Monapo Vila with 12 or less EAs the entire bairro was listed, and one-stage sampling was used, as explained in the next section. Therefore in the case of Monapo Vila two-stage sampling was only used for the bairro of Nachicuva, which has 21 EAs in the frame. Tables 5 and 6 present the distribution of the EAs and total households in the census frame for each bairro.

In the case of the bairro of Mutauanha in Nampula City the geographic subdivisions of the bairro were changed after the 2007 Census. This bairro was subdivided into 151 *quarteirões* of similar size, so a sample of *quarteirões* was selected at the first stage with equal probability. A listing of households was then conducted in each sample *quarteirão* for the selection of households at the second sampling stage.

Each bairro can be considered a separate sampling stratum. Within each stratum the EAs in the sampling frame were ordered geographically in order to provide additional implicit stratification and ensure a representative geographic distribution of the sample. The units of analysis for the survey are the individual households and the persons within each household.

Table 5. Distribution of EAs and Households from 2007 Mozambique Census Frame for Bairros in Nampula City for the Impact Evaluation Survey

| Domain and Bairro | Type of Residence | Number of EAs | Number of Households |
|-------------------|-------------------|---------------|----------------------|
| Nampula City | | | |
| Muatala | Urban | 77 | 9,731 |
| Muhala-Sede | Urban | 76 | 11,380 |
| Mutauanha | Urban | 72 | 13,438 |
| Namutequeliua | Urban | 51 | 9,405 |
| Muahivire | Urban | 78 | 11,052 |

Table 6. Distribution of EAs and Households from 2007 Mozambique Census Frame for Bairros in Monapo Vila for the Impact Evaluation Survey

| Domain and Bairro | Type of Residence | Number of EAs | Number of Households |
|-------------------|-------------------|---------------|----------------------|
| Monapo | | | |
| Mucaca | Peri urban | 9 | 1,108 |
| Mecutane | Urban | 8 | 743 |
| Topelane | Urban | 7 | 676 |
| Moajem | Urban | 5 | 489 |
| Boa Viagem | Urban | 5 | 537 |
| Metoprime | Urban | 4 | 386 |
| Mulotine | Peri urban | 6 | 610 |
| Nachicuva | Peri urban | 21 | 2,008 |
| Naheruque | Peri urban | 6 | 508 |
| Micolene | Peri urban | 8 | 477 |
| Nova Cuamba | Peri urban | 12 | 1,355 |

4.3 Sample distribution

As elaborated earlier, it was determined that a sample of 900 households would be selected for the bairros in Nampula City, and a sample of 880 households would be selected for the bairros in Monapo Vila. In the case of a two-stage sample, another important consideration is the number of households to be selected at the second stage in each sample cluster; this will affect the dispersion of the sample and the resulting precision of the survey estimates. In the case of a socioeconomic survey such as this evaluation study the optimum number of sample households per cluster is generally between 10 and 16 households. Taking into account the overall distribution of the sample and logistical issues for the fieldwork, it was determined that it would be effective to select 15 households per cluster for the bairros in Nampula City, and 16 households per cluster for the bairros of Monapo Vila.

At the first stage a sample of 10 EAs were selected for each bairro in Nampula City except for Muahivire, where 20 sample EAs were selected because of its size. In the case of Monapo Vila it was originally planned to select 5 EAs in each bairro at the first sampling stage and select 16 households in each sample EA at the second stage, for a total sample of 80 households in each bairro. However, given that most of the bairros in Monapo Vila only had between 4 and 12 EAs in the frame, it was decided to list all the households in each of these bairros, and then select a one-stage sample of 80 households in each bairro. The only bairro in Monapo Vila where two-stage sampling was used is Nachicuva, where 5 EAs were selected out of the 21 EAs in the frame for this bairro.

For the bairros where two-stage sampling was used, the EAs were selected at the first stage systematically with probability proportional to size (PPS), where the measure of size was based on the number of households in the 2007 Census frame. This sampling procedure will control the variability in the sampling weights within each bairro. The only exception was in the case of the bairro of Mutauanha in Nampula City, where the sample quarteirões were selected with equal probabilities. Table 7 shows the distribution of the sample EAs and sample households for each bairro in Nampula City and Monapo Vila.

4.4 Sample selection procedures⁶

As indicated previously, a two-stage sample design was used for the bairros in Nampula City and for the bairro of Nachicuva in Monapo Vila. For each of these bairros the sample EAs were selected with PPS at the first sampling stage using the following procedures:

- (1) The measures of size (number of households in the 2007 Census frame) were cumulated down the ordered list of EAs within the bairro. The final cumulated measure of size was equal to the total number of households in the frame for the bairro (M_h).

⁶ This section and the following section are extracted from the report prepared by David Megill, the Sampling Consultant for MSU (see Megill 2011).

- (2) To obtain the sampling interval for bairro h (I_h), M_h was divided by the total number of EAs to be selected in bairro h (n_h): $I_h = M_h/n_h$.
- (3) A random number (R_h) between 0 and I_h was selected. The sample EAs in bairro h were identified by the following selection numbers:

$$S_{hi} = R_h + [I_h \times (i - 1)], \text{ rounded up, where } i = 1, 2, \dots, n_h.$$

The i -th selected EA is the one with a cumulated measure of size closest to S_{hi} but not less than S_{hi} .

An Excel file was used for selecting the sample EAs in each bairro for the impact evaluation survey using these procedures, based on the final allocation of the sample EAs shown in Table 7. The Excel file has a separate spreadsheet for each bairro, showing the ordered list of EAs with the corresponding information from the sampling frame of EAs. These spreadsheets document the first stage systematic selection of sample EAs with PPS for each bairro. The file has a summary spreadsheet with the information from the frame for all sample EAs, and formulas for calculating the probabilities and weights based on the information in the frame.

Table 7. Distribution of Sample EAs and Households by Bairro for Urban Hotspot Impact Evaluation Survey

| Domain and Bairro | Sample EAs | Sample Households |
|-------------------|------------|-------------------|
| Nampula City | | |
| Muatala | 10 | 150 |
| Muhala-Sede | 10 | 150 |
| Mutauanha | 10* | 150 |
| Namutequeliua | 10 | 150 |
| Muahivire | 20 | 300 |
| Monapo | | |
| Mucaca | All | 80 |
| Mecutane | All | 80 |
| Topelane | All | 80 |
| Moajem | All | 80 |
| Boa Viagem | All | 80 |
| Metoprime | All | 80 |
| Mulotine | All | 80 |
| Nachicuva | 5 | 80 |
| Naherique | All | 80 |
| Micolene | All | 80 |
| Nova Cuamba | All | 80 |

*Sample quarteirões

In the case of the bairro of Mutauanha in Nampula City, the sample *quarteirões* were selected systematically with equal probability at the first sampling stage. In this case the same first stage selection procedures were followed, but the measure of size for each *quarteirão* was equal to 1.

A listing of households was conducted in each sample PSU (EA or *quarteirão*). At the second stage the sample households were selected systematically with equal probability from the listing for each PSU. A sample of 15 households was selected in each sample PSU for the bairros in Nampula City, and 16 households were selected in each sample PSU for the bairro of Nachicuva in Monapo Vila. In the case of each of the remaining bairros in Monapo Vila, all the households in the entire bairro were listed, and a random systematic sample of 80 households was selected with equal probability from the combined listing for the bairro.

4.5 Estimation procedures

In order for the sample estimates from the impact evaluation survey to be representative of the population, it is necessary to multiply the data by a sampling weight, or expansion factor. The basic weight for each sample household would be equal to the inverse of its probability of selection (calculated by multiplying the probabilities at each sampling stage). The sampling probabilities at each stage of selection were maintained in an Excel spreadsheet with information from the sampling frame for each sample EA.

In the case of the bairros in Nampula City and the bairro of Nachicuva in Monapo Vila where a two-stage sample design was used, the overall probability of selection for sample households in the impact evaluation survey can be expressed as follows:

$$p_{hi} = \frac{n_h \times M_{hi}}{M_h} \times \frac{m_{hi}}{M'_{hi}},$$

where:

p_{hi} = probability of selection for the sample households in the i-th sample EA in bairro h

n_h = number of sample EAs selected in bairro h for the survey

M_h = total number of households in the sampling frame of EAs for bairro h

M_{hi} = total number of households in the frame for the i-th sample EA in bairro h

m_{hi} = number of sample households selected in the i-th sample EA in bairro h

M'_{hi} = total number of households listed in the i-th sample EA in bairro h

The two components of this probability of selection correspond to the individual sampling stages. The basic sampling weight, or expansion factor, is calculated as the inverse of this probability of selection. Based on the previous expression for the probability, the weight can be simplified as follows:

$$W_{hi} = \frac{M_h \times M'_{hi}}{n_h \times M_{hi} \times m_{hi}},$$

where:

W_{hi} = basic weight for the sample households in the i-th sample EA in bairro h

If m_{hi} is constant for each bairro (15 or 16, for example), the sample will be approximately self-weighting within each bairro. These weights will actually vary slightly based on the difference between the number of households listed in each sample EA and the corresponding number from the sampling frame.

In the case of the bairro of Mutauanha in Nampula City, the basic weight would be calculated in the sample way, except that for each sample *quarteirão* $M_{hi} = 1$, and $M_h = 151$, the total number of *quarteirões* in the bairro.

For the bairros in Monapo Vila where one-stage sampling of households was used, the basic probability is calculated as follows:

$$p_h = \frac{m_h}{M'_h},$$

where:

p_h = probability of selection for the sample households in bairro h

m_h = 80 = number of sample households selected in bairro h

M'_h = total number of households listed in bairro h

The basic weight for these bairros in Monapo Vila will be the inverse of this probability, expressed as follows:

$$W_h = \frac{M'_h}{m_h},$$

where:

W_h = basic weight for the sample households in bairro h

It is also important to adjust the weights to take into account the non-interviews in each sample EA or bairro. In the case of the bairros in which two-stage sampling was used, the weights are calculated at the level of the sample EA, so it is advantageous to adjust the weights at this level. In the case of the bairros with a one-stage sample of households, the weights can be adjusted at the bairro level. The final weight (W'_{hi}) for the sample households in the i-th sample EA in stratum h can be expressed as follows:

$$W'_{hi} = W_{hi} \times \frac{m_{hi}}{m'_{hi}},$$

where:

m'_{hi} = total number of sample households with completed interviews in the i-th sample EA in bairro h

In the same way, the final weight (W'_h) for the sample households in bairro h using one-stage sampling can be expressed as follows:

$$W'_h = W_h \times \frac{m_h}{m'_h},$$

where:

m'_h = total number of sample households with completed interviews in bairro h

It is important to calculate sampling errors and confidence intervals for estimates of the key survey indicators. Given the stratification and clustering in the sample design, it is important to use a variance estimator that takes into account the nature of the design. The statistical software packages Stata and the Complex Samples module of SPSS have a linearized Taylor-series type of variance estimator that takes into account the sample design. It is necessary to specify the stratum, cluster and weight variables in the data file. For this survey the strata are defined as the bairros. In the case of the bairros where two-stage sampling was used, the PSUs are the EAs, so there should be a unique PSU code for each sample EA. However, for the bairros where one-stage sampling was used, the PSUs are the individual households, so each household should have a unique PSU code.

4.6 Baseline data collection

The baseline data were collected by interviewing the head of the households using a structured questionnaire. The questionnaire included more than 25 sections encompassing modules on:

- Household characteristics (demographic information by each member of the HH)
- Employment and sources of any other cash transfers
- Identification and list of all the parcels
- Land conflicts
- Rights to the land and perceptions of the risk
- Parcels rented out, rented in
- Characteristics of parcels
- Investments on land
- Perceptions about the DUAT, renting land and the land law
- Relative space occupied by crops in the plot
- Production and sales of basic food crops, cash crops, vegetables, fruits, nuts, etc.

- Agricultural practices
- Ownership of Assets
- Monthly expenditures
- Credit in the last 12 months
- Livestock and sub-products produced and sold in the last 12 months
- Consumption

The survey had detailed sections for each of the outcomes to be evaluated, both intermediate and final outcomes. In addition, each of the survey households were geo-referenced for ease of locating them for the panel survey. In households that were male-headed with a spouse present, the spouse was the respondent for the livestock and food consumption modules. The survey was designed to take between 1 and 1 ½ hours to complete.

The baseline survey was implemented from October-December 2010. If the head of the household was not present at the time of the first visit, enumerators tried to make an appointment and returned again to interview the appropriate person within the time that the survey team was in the area. Despite this strategy, the actual number of households surveyed turned out to be 1690—881 in Nampula city and 809 in Monapo vila (Table 8). A total of 90 households selected for the survey as per the sample design were not surveyed either because they refused or there was no one present at the time of the interview (due to travel status or out-migration). A field report in Portuguese on the survey implementation experience has been submitted by MINAG to MCA. A summary of this report in English is included in Annex 2 of this report.

Table 8. Number of households surveyed by type of bairro

| NAMPULA CITY | | | MONAPO VILA | | |
|-----------------|-----------|---------|-----------------|-----------|---------|
| HHs interviewed | | | HHs interviewed | | |
| Bairro | Treatment | Control | Bairro | Treatment | Control |
| Muatala | | 145 | Mecutane | 76 | |
| Muhala-Sede | 147 | | Boa Viagem | 78 | |
| Mutauanha | | 140 | Metoprine | 75 | |
| Namutequeliua | 150 | | Moagem | 63 | |
| Muahivire | 299 | | Mucaca | 74 | |
| | | | Topelane | 72 | |
| | | | Micolene | | 73 |
| | | | Mulotine | | 74 |
| | | | Naherengue | | 78 |
| | | | Nova Cuamba | | 69 |
| | | | Nachicuva | | 77 |
| Total | 596 | 285 | | 438 | 371 |
| Overall | | | | | |
| Treatment | | | 1,034 | | |
| Control | | | 656 | | |

Source: MCA/MINAG Urban Land Survey, 2010

5. Results

The results of the baseline data analysis presented in this section provide a picture of the status of surveyed households in study areas of Nampula city and Monapo vila across three broad categories: a) socio-economic characteristics (i.e., demographics, sources of income, asset holdings, and access to credit; b) land characteristics (i.e., land ownership, land markets, land investments, perceptions on tenure security and knowledge about land law and rights); and c) welfare characteristics (i.e., level of income, consumption and expenditure). For each characteristic, results are pooled across Nampula city and Monapo vila by treatment status (i.e., treatment and control groups). However, results separated for each municipality by treatment and control groups are presented in Annex 4 with the corresponding Table number. Also, for selected indicators, the disaggregated data for Nampula city and Monapo vila and by gender of the head of the household are presented in Tables in Annex 3 with the corresponding number. In order to determine if and where the project and control groups have different characteristics before project activities commence, T-tests were performed for each variable to compare the pooled means for the project and control groups. We identify cases where the difference between the mean values is statistically significant at 0.10 or better by the number of asterisks.

5.1 *Socio-economic characteristics*

5.1.1 *Household demographics*

Table 9 presents key demographic characteristics of the households of the study area. Results in Table 9 reveal that about 27% of the households in the study area are headed by women, the average age of the head of the household is 41 years, about 83% have at least some formal education and about 11% are currently attending school.

The household size in the study area is 5.6, which is equivalent to 4.3 in adult equivalent measure. Across the study area, a typical household has on average of one infant, two young children, and two adults. In terms of difference between the treatment and control groups, the households in the treatment groups are a bit larger in size (5.7 members), with a higher proportion of women as adult members of the household (52.1%), and have a higher literacy rate (77.3%) than control group households (Table 9).

Further analysis (Annex Table A3.9), shows that Nampula city have significantly greater number of households headed by women, more households who know how to read and write, and more households currently enrolled in school compared to Monapo vila, this pattern is also observed with regards to the household size. The male head of the households are on average one year older than their female counterparts. In terms of difference between the treatment and control sites within a municipality, the households in treatment bairros in Nampula city is larger than control households, has more adult members and higher aged head of the household (Annex Table A4.9). In Monapo vila, a significantly more heads of the households can read and write in treatment bairros and have more adult male members than in the control bairros (Annex Table A4.9).

5.1.2 Type of Employment and Income Sources

In the study area, the main sources of income are agricultural activities (80% of households engaged in crop production and 24% in livestock activities) and self-employment (ranging from cutting/collecting fire wood to purchase and sale of food products) (Table 10). The percentage of households engaged in these important activities and deriving sources of income is significantly higher in the treatment group compared to the control group.

Table 9. Demographic characteristics by bairro type

| Item | Treatment (T) | | Control (C) | | Total | | Testing (a) |
|---|---------------|------|-------------|-----|-------|-------|-------------|
| | Mean | N | Mean | N | Mean | N | |
| % of households headed by women | 27.1% | 1034 | 27.8% | 656 | 27.4% | 1,690 | |
| Age of the household head (years) | 41.4 | 1034 | 40.3 | 656 | 40.9 | 1,690 | |
| Education of the head: | | | | | | | |
| Know to read and write | 77.3% | 1034 | 76.0% | 656 | 76.8% | 1,690 | **T>C |
| Currently enrolled | 12.2% | 1034 | 8.5% | 656 | 10.6% | 1,690 | |
| Have ever been to school | 83.0% | 1034 | 83.6% | 656 | 83.2% | 1,690 | |
| Household size: | | | | | | | |
| Total number of members | 5.7 | 1034 | 5.5 | 656 | 5.6 | 1,690 | **T>C |
| Total Adult Equivalent ⁷ | 4.4 | 1034 | 4.2 | 656 | 4.3 | 1,690 | ***T>C |
| Women as percentage of all adults, 15 years of age or older | 52.1% | 1032 | 49.6% | 656 | 51.1% | 1,688 | **T>C |
| Household composition: average number of members per age group | | | | | | | |
| Infant (<5 years) | 1.0 | 1034 | 1.0 | 656 | 1.0 | 1,690 | |
| Child (5-15 years) | 1.7 | 1034 | 1.7 | 656 | 1.7 | 1,690 | |
| Adult (15-45 years) | 2.4 | 1034 | 2.4 | 656 | 2.4 | 1,690 | |
| Adult (45-60 years) | 0.4 | 1034 | 0.3 | 656 | 0.4 | 1,690 | *T>C |
| Older (> 60 years) | 0.1 | 1034 | 0.1 | 656 | 0.1 | 1,690 | |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing (comparing (T) and (C)): * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

A minority of households in the study area across both treatment and control sites are involved in salaried employment, which includes teaching/health service (11%), agricultural labor (11%), and working as a mechanic, construction or factory worker (9%). Pensions and remittances are other important sources of income for the households in the study area. Results in Table 10, indicate that less than 6% of the surveyed households receive pensions (6.5% in treatment sites and 4.8% in control group). The percentage of households receiving remittances from others is 22% for the overall study population, with the percentage of households relying on this source of income significantly higher in treatment group (24%) compared to control group (19%). The percentage of households deriving sources of income from some minor categories of self-employment such as migrant worker, domestic worker, cutting grass, brick laying, tailoring, etc. is significantly higher in control groups compared to treatment areas (Table 10).

⁷ Factors drawn from Deaton (1997), used by Boughton et al. (2006) and Mather and Donovan (2009) for Mozambique.

Table 10. Percentage of households reporting income from different sources and type of economic activity

| Source of income | Treatment (T) | | Control (C) | | Total | | Testing (a) |
|---|---------------|-------|-------------|-----|-------|-------|-------------|
| | Mean | N | Mean | N | Mean | N | |
| Remittances and pensions: | | | | | | | |
| % of household that received pension | 6.5% | 1034 | 4.8% | 656 | 5.8% | 1,690 | |
| % of household that received remittances | 24.3% | 1,034 | 19.2% | 656 | 22.2% | 1,690 | *T>C |
| % of households engaged in agricultural activities: | | | | | | | |
| Crop production | 83.3% | 1,034 | 75.4% | 656 | 80.0% | 1,690 | **T>C |
| Livestock | 26.5% | 1,034 | 21.6% | 656 | 24.4% | 1,690 | |
| Salaried employment: % of households with members working as | | | | | | | |
| Agricultural laborer | 13.9% | 1,034 | 6.1% | 656 | 10.6% | 1,690 | |
| Migrant worker | 0.0% | 1034 | 0.5% | 656 | 0.2% | 1,690 | **T<C |
| Teacher, health service | 9.1% | 1,034 | 13.5% | 656 | 11.0% | 1,690 | |
| Mechanic, construction, factory worker | 9.0% | 1034 | 8.1% | 656 | 8.6% | 1,690 | |
| Manager, accountant, secretary | 1.9% | 1034 | 4.5% | 656 | 3.0% | 1,690 | *T<C |
| Domestic worker | 2.4% | 1034 | 4.5% | 656 | 3.3% | 1,690 | ***T<C |
| Sales person, service industry | 0.3% | 1034 | 1.0% | 656 | 0.6% | 1,690 | |
| Other salaried employee | 27.2% | 1034 | 19.1% | 656 | 23.8% | 1,690 | |
| Self-employment: % of households engaged in collecting and selling forest and fauna products | | | | | | | |
| Cut/collect firewood | 21.8% | 1,034 | 17.4% | 656 | 20.0% | 1,690 | **T>C |
| Charcoal production | 1.2% | 1,034 | 0.3% | 656 | 0.8% | 1,690 | |
| Cut grass, cane, palm tree leaves | 6.4% | 1,034 | 7.8% | 656 | 7.0% | 1,690 | **T<C |
| Cut branches | 2.1% | 1,034 | 2.0% | 656 | 2.0% | 1,690 | |
| Collect honey, bush plants and fruits, eggs of wild animals | 0.1% | 1,034 | 0.0% | 656 | 0.1% | 1,690 | |
| Hunting | 0.1% | 1,034 | 0.4% | 656 | 0.2% | 1,690 | |
| Fishing | 0.5% | 1,034 | 0.5% | 656 | 0.5% | 1,690 | |
| Wood production | 0.6% | 1,034 | 0.1% | 656 | 0.4% | 1,690 | |
| Catching birds and reptiles | 0.1% | 1,034 | 0.6% | 656 | 0.3% | 1,690 | |
| Other self-employment activities: | | | | | | | |
| % of households undertaking these activities | 49.5% | 1034 | 46.5% | 656 | 48.2% | 1,690 | **T>C |
| Production of home-made beverages | 4.2% | 1,034 | 6.8% | 656 | 5.3% | 1,690 | |
| Purchase/sale of beverages | 3.1% | 1,034 | 3.8% | 656 | 3.4% | 1,690 | |
| Purchase/sale of food products | 23.5% | 1,034 | 19.2% | 656 | 21.7% | 1,690 | **T>C |
| Purchase/sale of all commercial goods | 3.0% | 1,034 | 2.8% | 656 | 2.9% | 1,690 | |
| Purchase/sale of fish | 6.6% | 1,034 | 4.5% | 656 | 5.8% | 1,690 | **T>C |
| Purchase/sale of small size livestock and its by-product | 1.1% | 1,034 | 0.6% | 656 | 0.9% | 1,690 | |
| Purchase/sale of medium size livestock and its by-product | 4.8% | 1,034 | 2.4% | 656 | 3.8% | 1,690 | |
| Purchase /sale of large size livestock and its by-product | 1.0% | 1,034 | 0.1% | 656 | 0.6% | 1,690 | *T>C |
| Handcrafts/masonry/carpentry | 2.4% | 1,034 | 2.0% | 656 | 2.2% | 1,690 | |
| Tailoring/dressmaking | 0.8% | 1,034 | 2.3% | 656 | 1.5% | 1,690 | *T<C |
| Radio/bike repair | 0.9% | 1,034 | 0.3% | 656 | 0.7% | 1,690 | |
| Bricks production, bricklaying | 1.5% | 1,034 | 2.6% | 656 | 2.0% | 1,690 | *T<C |
| Milling or agro-processing | 0.5% | 1,034 | 0.0% | 656 | 0.3% | 1,690 | |
| Other activity | 6.8% | 1,034 | 6.4% | 656 | 6.6% | 1,690 | |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing comparing (T) and (C): * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

Disaggregation by cities, by treatment and control groups within a city or by gender of the household head reveals considerable variation in terms of relative importance of different income sources between Nampula city and Monapo Vila, between the treatment and control groups within a city as well as between male headed households and female headed households (Annex Table A3.10 and A4.10). For example, while 23% of households in Nampula are engaged in livestock production, share of households engaged in this activity is 35% in Monapo Vila.

However, the share of households engaged in livestock activity within Nampula city is more in treatment vs. control bairros (Table A4.10). Similarly, 27% of male headed households reported to have raised some animals, compared to 19% of female headed households who reported to have done the same. The difference in share of households receiving pension or remittances between the two cities and the two head groups is also statistically significant. But within a city, the difference between treatment and control sites is not statistically significant.

5.1.3 Non-land family assets

In the municipalities of Nampula city and Monapo vila, the five most common household assets in their order of abundance are beds, mobile phones, radios, television, and coal iron, while the least common assets held, not surprisingly, are washing machines, air conditioners, gas stove, and mixed stove (Table 11). Among the major assets owned, households in treatment group have significantly more cars, mobile phones, fridge and gas stoves. On the other hand, households in control villages have significantly more sewing machines and coal irons (Table 11).

Further analysis by cities (see Annex Table A3.11 and Table A4.11) suggests some vast difference in asset ownership between the two cities and the treatment status within a city, especially within Monapo vila. While more than half of households (51%) and almost one third of the households (29%) in Nampula city own television and freezer, respectively, the corresponding figures are only 19% and 12% in Monapo vila. This is however consistent with the fact that Nampula is more urban than Monapo vila. The asset ownership also tends to vary with household head's gender, but the magnitude is smaller in most cases compared to the comparison between Nampula and Monapo vila. In general, the treatment households have significantly more assets than the control bairros in both the cities for many items where the difference is statistically significant (Table A4.11).

Results in Table 12, indicate that on average households located in the treatment villages have significantly greater number of assets (6.6), assets recently purchased (0.7) as well as the total average value of recently purchased assets (US\$ 200) compared to those in the control sites. This is also the case when treatment bairros are compared with control bairros within the two cities (Annex Table A4.12).

Table 11. Percentage of households owing various assets, by bairro type

| Item | Treatment (T) | | Control (C) | | Total | | Testing (a) |
|--|------------------|-------|----------------|-----|-------|-------|-------------|
| | Mean | N | Mean | N | Mean | N | |
| Car, purchased new | 0.6% | 1,034 | 0.3% | 656 | 0.5% | 1,690 | |
| Car, purchased second hand | 4.8% | 1,034 | 1.6% | 656 | 3.5% | 1,690 | ***T>C |
| Motorcycle | 14.0% | 1,034 | 13.3% | 656 | 13.7% | 1,690 | |
| Bicycle | 17.6% | 1,034 | 18.5% | 656 | 18.0% | 1,690 | |
| Radio | 47.3% | 1,034 | 43.3% | 656 | 45.6% | 1,690 | |
| Sound system | 24.6% | 1,034 | 23.7% | 656 | 24.2% | 1,690 | |
| Television | 47.9% | 1,034 | 45.4% | 656 | 46.8% | 1,690 | |
| Washing machine | 0.2% | 1,034 | 0.2% | 656 | 0.2% | 1,690 | |
| Air conditioner | 0.7% | 1,034 | 0.2% | 656 | 0.5% | 1,690 | |
| Sewing machine | 2.5% | 1,034 | 5.1% | 656 | 3.6% | 1,690 | ***T<C |
| Fridge | 7.6% | 1,034 | 3.4% | 656 | 5.8% | 1,690 | ***T>C |
| Freezer | 27.8% | 1,034 | 25.6% | 656 | 26.9% | 1,690 | |
| Electric iron | 22.9% | 1,034 | 17.8% | 656 | 20.7% | 1,690 | |
| Coal iron | 34.1% | 1,034 | 38.0% | 656 | 35.8% | 1,690 | *T<C |
| Fan | 28.9% | 1,034 | 22.4% | 656 | 26.2% | 1,690 | |
| Beds (double, single, cot for children, and bunk beds) | 82.5% | 1,034 | 81.0% | 656 | 81.8% | 1,690 | |
| Landline telephone handset | 0.8% | 1,034 | 0.2% | 656 | 0.6% | 1,690 | |
| Mobile phone | 60.2% | 1,034 | 51.7% | 656 | 56.6% | 1,690 | **T>C |
| Computer | 4.5% | 1,034 | 3.0% | 656 | 3.8% | 1,690 | |
| Printer | 2.2% | 1,034 | 1.4% | 656 | 1.9% | 1,690 | |
| Wall clocks, wrist or pocket | 30.4% | 1,034 | 28.5% | 656 | 29.6% | 1,690 | |
| Electric stove | 2.4% | 1,034 | 2.3% | 656 | 2.4% | 1,690 | |
| Gas stove | 0.9% | 1,034 | 0.3% | 656 | 0.7% | 1,690 | **T>C |
| Mixed Stove | 1.0% | 1,034 | 0.5% | 656 | 0.8% | 1,690 | |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing comparing (T) and (C): * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

Table 12. Average number and value of purchased assets per household

| Item | Treatment (T) | | Control (C) | | Total | | Testing (a) |
|---|------------------|-------|----------------|-----|--------|-------|-------------|
| | Mean | N | Mean | N | Mean | N | |
| Average total number of assets per household | 6.6 | 1,034 | 5.9 | 656 | 6.3 | 1,690 | ***T>C |
| Average number of assets recently purchased | 0.7 | 1,034 | 0.5 | 656 | 0.6 | 1,690 | **T>C |
| Total value of assets recently purchased per household (\$US) | 200.46 | 1,034 | 68.59 | 656 | 145.05 | 1,690 | ***T>C |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing (comparing (T) and (C)): * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

Further analysis reported in Annex Table A3.12 shows that Nampula city as well as the male-headed households has significantly greater non-farm assets and total average value of assets

compared to Monapo vila and female-headed households, respectively. For instance, these results show that the male-headed households have spent on average \$166.96 in the last 12 months purchasing durable goods, twice as much as the female-headed households in the same time period.

5.1.4 Livestock assets

In Mozambique, livestock ownership is an indication of not only the wealth of a household but also a potential source of income generation. Table 13 reports that about 24% of the surveyed households raised animals in the last 12 months. Among those who raised animals, the most common form of selling animals is by slaughtering (54%), while only about 13% sold animals alive. Those who sold slaughtered animals; a significantly greater proportion is from treatment sites (61%).

Further analysis indicates that a significantly greater number of households in Monapo vila raise animals compared to those in Nampula city (see Annex Table A3.13). However, the difference between treatment and control bairros is not significant in Monapo vila (Annex Table A4.13). In Nampula city, more households in treatment bairros raised and sold animals than households in control bairros. Analyzing the gender differences in terms of livestock, survey results show that significantly greater number of male-headed households (27%) raise animals compared to female-headed households (19%) (Table A3.13).

Table 13. Production and sales of livestock and sub-products in the last 12 months

| Item | Treatment (T) | | Control (C) | | Total | | Testing (a) |
|---|---------------|-------|-------------|-----|-------|-------|-------------|
| | Mean | N | Mean | N | Mean | N | |
| % households that raised animal in the last 12 months | 26.5% | 1,034 | 21.6% | 656 | 24.4% | 1,690 | |
| <u>Among the households that raised animals:</u> | | | | | | | |
| % that sold animals alive in the last 12 months | 10.8% | 320 | 17.6% | 191 | 13.3% | 511 | |
| % that sold slaughtered animals in the last 12 months | 60.5% | 320 | 43.6% | 191 | 54.2% | 511 | *T>C |
| Average Tropical Livestock Units (TLU) owned ⁸ | 0.29 | 320 | 0.22 | 191 | 0.26 | 511 | |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing comparing (T) and (C): * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

5.1.5 Access to credit

Financial services in Mozambique are scarce. Recent national surveys have shown very low level of credit access. Results in Table 14 are surprisingly higher than the national average of 3.5% and 2.6% according to MINAG (2005) and MINAG (2008); respectively. About 7% of the surveyed households in Nampula city and Monapo vila, reported having applied for credit, with no significant difference between the treatment and control bairros when pooled across the two cities. But within Nampula city, the percentage of household who applied for credit was significantly more in control bairros than in treatment bairros. The opposite was the case in

⁸ Livestock Unit (LU) conversion factors: Cattle (0.65), buffalo (0.70), sheep and goat (0.10), pig (0.25) and poultry (0.01) (FAO, 2005), exclude rabbit.

Monapo vila (Annex Table A2.14). The most cited reasons for applying for credit was food consumption (28%), asset purchases (27%), and ‘other uses’ not disclosed (34%). Health, ceremonies and education were also reported as reasons for applying for credit by 17%, 9% and 8% of households, respectively. It is important to note that except for asset purchase, all the uses of credit reported are similar across treatment and control sites.

For those households who did not apply for credit, the main reasons provided are the concern of not being accepted (28%) no need (21%), and lack of access to credit services (20%) (Table 15, bottom panel). Lack of collateral was cited as the next important reason for not applying for credit by 10% of households in treatment areas and 15% of households in control areas.

Table 14. Access to credit in the last 12 months

| Item | Treatment (T) | | Control (C) | | Total | | Testing (a) |
|--|------------------|-------|----------------|-----|-------|-------|----------------|
| | Mean | N | Mean | N | Mean | N | |
| % of households that applied for credit in the last 12 months | 7.1% | 1,034 | 6.9% | 656 | 7.0% | 1,690 | |
| Reasons for applying for credit (% of households): | | | | | | | |
| Food consumption | 27.8% | 84 | 28.9% | 47 | 28.3% | 131 | |
| Agricultural investment | 4.0% | 84 | 5.3% | 47 | 4.5% | 131 | |
| Ceremonies | 12.0% | 84 | 3.5% | 47 | 8.6% | 131 | |
| Education | 1.8% | 84 | 17.0% | 47 | 7.9% | 131 | |
| Health | 2.7% | 84 | 37.4% | 47 | 16.7% | 131 | |
| Asset purchase | 26.9% | 84 | 27.1% | 47 | 27.0% | 131 | *T<C |
| Travel | 5.6% | 84 | 1.9% | 47 | 4.1% | 131 | |
| Other | 36.1% | 84 | 30.8% | 47 | 33.9% | 131 | |
| For those who did not apply, reasons for not applying for credit (% of households): | | | | | | | |
| No need | 22.7% | 950 | 17.9% | 609 | 20.7% | 1559 | |
| Was refused | 2.4% | 950 | 1.8% | 609 | 2.1% | 1559 | |
| Lack of access | 20.4% | 950 | 18.7% | 609 | 19.7% | 1559 | |
| Concerned about not being accepted | 26.0% | 950 | 30.4% | 609 | 27.8% | 1559 | |
| Lack of collateral | 10.0% | 950 | 15.4% | 609 | 12.3% | 1559 | |
| High transaction costs | 3.0% | 950 | 4.2% | 609 | 3.5% | 1559 | |
| Do not want to offer collateral | 3.2% | 950 | 2.0% | 609 | 2.7% | 1559 | |
| Do not want to have debts | 8.1% | 950 | 7.5% | 609 | 7.9% | 1559 | |
| Other | 3.7% | 950 | 2.0% | 609 | 3.0% | 1559 | **T>C |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing comparing (A) and (B), (C) and (D); (T) and (C): * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

Further analysis indicates that Monapo vila has a significantly greater number of households who applied for credit for food purchases and food consumption, while the reverse is observed for investment in agriculture and travel (Annex Table A3.14). Looking at the gender issue, the survey data indicates significantly greater male-headed households applying for credit but, significantly lower number of those households using it for investment in agriculture. The difference between treatment and control sites within a municipality in terms of reasons for applying or not applying for credit is not statistically significant (Annex Table A4.14).

In terms of sources of credit, the most common sources of credit are the bank (41%), friends (24%), and associations (13%) (Table 15). Among these major sources, friends are a major source of credit for a significantly more numbers of households in the treatment areas (29%) than in the control sites (17%). On the other hand, government and relatives seem to be the sources of credit application for a significantly more number of households in the control sites (16% and 12%, respectively) than in the treatment sites (7% and 6%, respectively) (Table 15). However, when each city is examined separately, the differences between treatment and control sites is not statistically significant for any sources of credit (Table A4.15).

Table 15. Percentage of households that applied for credit (N=131) by source of credit

| Source of credit | Treatment (T) | | Control (C) | | Total | | Testing (a) |
|---------------------|------------------|----|----------------|----|-------|-----|----------------|
| | Mean | N | Mean | N | Mean | N | |
| Government | 5.5% | 84 | 16.0% | 47 | 9.7% | 131 | |
| Bank | 46.0% | 84 | 33.7% | 47 | 41.0% | 131 | |
| Associations | 6.9% | 84 | 22.3% | 47 | 13.2% | 131 | |
| Companies | 0.6% | 84 | 0.3% | 47 | 0.5% | 131 | |
| NGOs | 2.4% | 84 | 1.2% | 47 | 1.9% | 131 | |
| Traders/Businessmen | 0.3% | 84 | 2.0% | 47 | 1.0% | 131 | *T<C |
| Relatives | 6.8% | 84 | 12.1% | 47 | 8.9% | 131 | |
| Friends | 29.2% | 84 | 16.9% | 47 | 24.2% | 131 | |
| Other | 3.8% | 84 | 0.3% | 47 | 2.4% | 131 | *T>C |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing comparing (A) and (B), (C) and (D); (T) and (C): * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

On average, the amount of credit requested by those who accessed credit in the past 12 months (131 total households) is about \$1,155, with households from the treatment sites requesting a significantly greater amount of money (\$1,242) than those in the control sites (\$1,027). About 16% of those who applied for credit had to present collateral (16.3% households in treatment group and 15.9% in control area) (Table 16). The success rate in obtaining the credit from the applied sources is only 81% and the amount received as loan was about \$635, equivalent to about 55% of amount requested (Table 16). The average amount of loan received by households in the control area (\$659) is significantly higher than the average loan amount received by households in the treatment group (\$618). Similarly, the term of the loan is significantly longer for the households in the control area (1.51 years) than in the treatment area (0.83 years), which also translates in to a significantly higher amount of total loan repayment by the households in the control group (1.40 loan to repayment ratio) than in the treatment group (1.16 loan to repayment ratio). Among those that were denied loans, 27% of them across the study area were denied because of the insufficient collateral and insufficient income (Table 16).

Further analysis presented in Annex Table A3.16 indicates while there is no significant difference in share of households applying for the credit and the amount of credit requested by those who applied between the two cities, the amount received per household is significantly higher in Monapula than in Nampula (US\$ 21,955 versus 13,698). However, in terms of

comparisons between treatment and control sites within the two municipalities, there is no statistically significant difference in the amount received or requested (Annex Table A4.16). In the meantime, male headed households are significantly more likely to apply for credit and tend to request significantly more credit when they applied than female headed households Annex Table A3.16).

Table 16. Amount requested and accessed per household and reasons for not accessing credit

| Item | Treatment (T) | | Control (C) | | Total | | Testing (a) |
|--|------------------|-------|----------------|-----|----------|-------|----------------|
| | Mean | N | Mean | N | Mean | N | |
| % of households that applied for credit | 7.1% | 1,034 | 6.9% | 656 | 7.0% | 1,690 | |
| <u>Among those who applied (total N=131):</u> | | | | | | | |
| Average total amount requested per household (\$US) | 1,242.02 | 84 | 1,027.33 | 47 | 1,155.20 | 131 | ***T>C |
| Median total amount requested per household (\$US) | 218.10 | 84 | 181.75 | 47 | 218.10 | 131 | ***T>C |
| % of households that had to present collateral | 16.3% | 84 | 15.9% | 47 | 16.1% | 131 | *T>C |
| <u>% of households by type of collateral presented:</u> | | | | | | | |
| House | 5.6% | 84 | 0.3% | 47 | 3.4% | 131 | |
| Other | 8.0% | 84 | 4.1% | 47 | 6.4% | 131 | |
| Unreported | 2.8% | 84 | 11.5% | 47 | 6.3% | 131 | *T<C |
| % household that received credit | 79.8% | 84 | 82.8% | 47 | 81.0% | 131 | |
| % households that were denied credit | 20.2% | 84 | 17.2% | 47 | 19.0% | 131 | **T>C |
| <u>Among those who received credit (total N=95):</u> | | | | | | | |
| Average amount received per household (\$US) | 617.51 | 57 | 658.89 | 38 | 634.62 | 95 | **T<C |
| Median amount received per household (\$US) | 141.77 | 57 | 181.75 | 38 | 181.75 | 95 | **T<C |
| Average amount to repay per household (\$US) | 719.36 | 57 | 916.12 | 38 | 800.70 | 95 | **T<C |
| Median amount to repay per household (\$US) | 141.77 | 57 | 363.50 | 38 | 218.10 | 95 | **T<C |
| Average time to repay the credit (years) | 0.83 | 57 | 1.51 | 38 | 1.17 | 95 | *T<C |
| <u>Among those who were denied credit (total N=36):</u> | | | | | | | |
| <u>% of household by reasons for not getting credit:</u> | | | | | | | |
| Insufficient income | 7.7% | 27 | 60.1% | 9 | 26.9% | 36 | |
| Insufficient collateral | 31.6% | 27 | 19.2% | 9 | 27.0% | 36 | |
| Other debts | 1.6% | 27 | 0.0% | 9 | 1.0% | 36 | |
| Other reason | 56.6% | 27 | 18.8% | 9 | 42.8% | 36 | **T>C |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing comparing (T) and (C): * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

Exchange rate: 1.00USD=27.51

5.2 Land ownership, land markets and perceived tenure security

Respondents were asked a detailed set of questions on land assets that include parcel locations, parcel characteristics in terms of size, use type, mode of acquisition, cost of transaction, lease documents, market participation, land value, perception about land tenure security, etc. In this section, we present the baseline findings on all these aspects.

5.2.1 Profile of land parcels surveyed in terms of location, size, use, and ownership status

The baseline data set contains an inventory of 3,992 parcels reported as being ‘in possession’ by the 1,690 households surveyed in the Nampula city and Monapo vila. Table 17 provides an overview of the location of these parcels in terms of those falling within the study areas (treatment and control bairros) versus those falling outside the study boundaries. These parcels are also categorized by the main use of the parcel. Not surprisingly, a majority of parcels are used for residence (1950) or agriculture purposes (1898). Very few parcels were reported to be used mainly for commerce (22) and some were reported as vacant parcels or their use was not reported (117) (the last column in Table 17).

A majority of parcels that are mainly used for agriculture fall outside the study boundaries (1,469 out of 1,898 agriculture parcels). This is expected given the fact that our study area comprises mainly of households residing in urban and peri-urban. The four gray shaded cells in Table 17, which are parcels in the treatment and control areas mainly used for residence and agriculture purposes (total 2,154 parcels) are the focus of the baseline analysis reported in this section.

Table 17. Location of parcels documented in baseline survey by main use

| Parcel Location | Main use of parcel | | | | | Total |
|------------------------------|--------------------|-------------|----------|-------|------------------------------|-------|
| | Residence | Agriculture | Commerce | Other | Not used or use not reported | |
| Treatment | 1,221 | 326 | 11 | 2 | 24 | 1,584 |
| Control | 504 | 103 | 4 | 1 | 9 | 621 |
| Outside the study boundaries | 225 | 1,469 | 7 | 2 | 84 | 1,787 |
| Total | 1950 | 1898 | 22 | 5 | 117 | 3,992 |

Source: MCA/MINAG's Urban Land Survey, 2010

Table 18 provides the breakdown of the 3,848 parcels mainly used for residence and agriculture purposes in terms of their location by treatment sites (1,547 parcels), control sites (607 parcels) and outside the study area (1,694). Of the 2,154 parcels located in the study area, 52% (1,132 parcels) are located in Nampula city and 48% (1,022 parcels) are located in Monapo vila (Table 18). In terms of the ownership status, a majority of parcels (1,900 out of 2,154) located in the study area (i.e., treatment and control bairros selected for this study), belong to the households surveyed and were in their possession at the time of the survey (Table 19). One hundred sixty parcels (comprised of 121 parcels in treatment bairros and 39 in control bairros) were rented-in or borrowed from others, and 94 parcels (68 in treatment and 26 in control areas) were rented-out or lent to others at the time of the survey. The relatively small number of parcels rented-in or rented-out (about 11.7% share in total) indicate the small size of the land rental market in Nampula and Monapo cities. However, there are no national data on the size of land rental markets to be able to do any comparative analysis. Further breakdown of the parcel ownership status by the main use of parcel suggests that a majority of the parcels rented-in are for agriculture purpose (121 out of 160) and a majority of parcels rented out are for residential purpose (85 out of 94) (Table 19 and Annex Table A3.19 and A4.19).

Table 20 reports the number and size of parcels owned and rented, and distribution of parcels by use type in both the treatment and control groups. On average, a household in the sample owns 2

parcels with 1.6 parcels currently in owner's possession and 0.1 parcels being rented out to other households and 0.3 parcels rented-in or borrowed from others (top panel of the Table). Unlike the case for the number of parcels owned, households in treatment group rented-in significantly more parcels than those in control group (0.4 versus 0.1). When comparing the treatment and control sites within the two cities, treatment households in Nampula city on average own more parcels, have more number of parcels rented-out and rented-in than control households. The difference in the number of ownership and rental status of parcels is not statistically different between treatment and control sites in Monapo vila (Annex Table A4.20).

Table 18. Location of the households and their parcels in relation to the boundaries of the study area \a

| Location of the household | Number of households | Location of the parcels used for residence and agriculture purpose only | | | |
|---------------------------|----------------------|---|---------|-------|------------------------|
| | | In the study area | | | Outside the study area |
| | | Treatment | Control | Total | |
| Nampula | | | | | |
| Treatment | 596 | 794 | 4 | 798 | 365 |
| Control | 285 | 172 | 162 | 334 | 108 |
| Total | 881 | 966 | 166 | 1,132 | 473 |
| Monapo | | | | | |
| Treatment | 438 | 544 | 18 | 562 | 639 |
| Control | 371 | 37 | 423 | 460 | 582 |
| Total | 809 | 581 | 441 | 1,022 | 1,221 |
| Overall | | | | | |
| Treatment | 1,064 | 1,338 | 22 | 1,360 | 1,004 |
| Control | 565 | 209 | 585 | 794 | 690 |
| Total | 1,690 | 1,547 | 607 | 2,154 | 1,694 |

Source: MCA/MINAG's Urban Land Survey, 2010

\a Includes parcels used for agriculture and residence purpose only

Table 19. Number of parcel by type and by location

| Type of parcel | Location of parcel | | Total |
|---|--------------------|------------|--------------|
| | treatment | control | |
| 1. Belong to hh and currently in their possession | 1,358 | 542 | 1,900 |
| <i>Residential parcels:</i> | 1,135 | 466 | 1,601 |
| <i>Agriculture parcels:</i> | 223 | 76 | 299 |
| 1. Rented-out or lent to others | 68 | 26 | 94 |
| <i>Residential parcels:</i> | 64 | 21 | 85 |
| <i>Agriculture parcels:</i> | 4 | 5 | 9 |
| 2. Rented-in or borrowed from others | 121 | 39 | 160 |
| <i>Residential parcels:</i> | 22 | 17 | 39 |
| <i>Agriculture parcels:</i> | 99 | 22 | 121 |
| Total | 1,547 | 607 | 2,154 |

Average size of parcels across all types and uses is 1,596 m² with some variation between parcels in owner's possession and rental parcels (middle panel of the Table). The average size of parcels in owner's possession is significantly smaller for the treatment group than for the control group (1358 m² vs. 1591 m²). Similarly, for the parcels that were rented out to others, the parcel size is significantly smaller in the treatment group (464 m²) than that in the control group (960 m²). Compared to the parcel size for those rented out, the average size for rented-in parcels is almost eight times larger (4327 m² vs. 541 m²), and they are significantly larger in treatment areas (4432 m²) than in control areas (3599 m²) (Table 20). However, the difference in parcel size is not statistically significant between treatment and control sites within the two municipalities (Annex Table A4.20).

Table 20. Number of land parcels and parcel size

| Item | Treatment | | Control | | Total | | Testing (a) |
|---|-----------|-------|---------|-----|---------|-------|----------------|
| | (T) | | (C) | | Mean | N | |
| | Mean | N | Mean | N | | | |
| Average number of parcels per hh: | | | | | | | |
| Parcels belong to hh and currently in their possession | 1.6 | 1,034 | 1.6 | 656 | 1.6 | 1,690 | ***T>C |
| Parcels rented-out or lent to others | 0.1 | 1,034 | 0.1 | 656 | 0.1 | 1,690 | |
| Parcels rented-in or borrowed | 0.4 | 1,034 | 0.1 | 656 | 0.3 | 1,690 | |
| Average total no. of parcels per hh | 2.1 | 1,034 | 1.8 | 656 | 2.0 | 1,690 | |
| Average total area of parcels (m²) owned by a hh (b) | | | | | | | |
| | 1,577.9 | 1,543 | 1,682.9 | 604 | 1,596.4 | 2,147 | ***T>C |
| Average parcel area (m²) by parcel type: | | | | | | | |
| Parcels that belong to hh and currently in their possession | 1,357.5 | 1354 | 1,590.7 | 539 | 1,399.8 | 1,893 | *T<C |
| Parcels rented-out or lent to others | 463.8 | 68 | 959.8 | 26 | 540.6 | 94 | **T<C |
| Parcels rented-in or borrowed | 4,432.4 | 121 | 3,598.5 | 39 | 4,326.7 | 160 | **T>C |
| Average parcel area (m²) by parcel's main use: | | | | | | | |
| Residence | 633.3 | 1217 | 420.7 | 501 | 594.7 | 1,718 | **T>C |
| Agriculture | 5,801.0 | 326 | 8,664.2 | 103 | 6,235.6 | 429 | **T<C |
| Source: MCA/MINAG's Urban Land Survey, 2010 Weighted to reflect population (a) Significance testing (comparing (Treatment) and (Control): * indicates significant difference at 10% level, ** at 5%, and *** at 1%. (b) 7 parcels with no information on the land size | | | | | | | |

By the use type, residential plots account for a majority of parcels among the sampled households. As expected, agricultural parcels are much larger than residential parcels (6,235 m² versus 595 m²) (Table 20)⁹. Comparison between the two groups reveal that the residential plot size is significantly larger in treatment group (633 m²) than in control group (421 m²) and the

⁹ The plot size figures for the residential plot are more reliable than those for agricultural plots, as respondents were able to provide plot size in square meters for majority of the residential plots (close to 98%), and for a small proportion of agricultural plots (<20%). For majority of agricultural plots, they reported the size in acres, which are then converted into square meters.

opposite is true for the agricultural plots. However, this difference only exists in households sampled in Nampula city (Annex Table A4.20).

The aggregation, however, masks considerable variation across location and head's gender (see Annex Table A3.20). For example, the number of parcels is higher in Monapo Vila than in Nampula (2.4 versus 1.5). While the agricultural plots are significantly bigger in Monapo Vila than in Nampula city (7739 m² vs. 5910 m²), the average size of residential plots is similar in both areas (592 m² vs. 613 m²). Compared to female-headed households, male-headed households tend to own larger residential and agricultural plots. However, the size difference in agricultural plots between male-headed households and female-headed households is statistically insignificant.

Table 21 reports the use of agricultural land parcels located in the treatment and control bairros. Of the 424 agricultural parcels that reported the land use, 95% reported its use for annual crops, 42% for permanent crops and 10% kept it fallow. None of the parcels reported to be used for grazing activities. Other than the fallow use, there was no significant difference in the use of agricultural land for different purposes (Table 21 and Annex Table A4.21).

Table 21: Types of agricultural uses of land parcels

| Table 21: Types of agricultural uses of land parcels | | | | | | | |
|--|------------------|-----|----------------|-----|-------|-----|----------------|
| Item | Treatment (T) | | Control (C) | | Total | | Testing (a) |
| | Mean | N | Mean | N | Mean | N | |
| % of parcels used for the following agricultural purposes (b): | | | | | | | |
| Annual crops | 95.5% | 321 | 91.2% | 103 | 94.9% | 424 | **T>C |
| Permanent crops | 41.8% | 321 | 40.5% | 103 | 41.6% | 424 | |
| Fallow | 10.9% | 321 | 7.5% | 103 | 10.4% | 424 | |
| Grazing | 0.0% | 321 | 0.0% | 103 | 0.0% | 424 | |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing (comparing (Treatment) and (Control): * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

(b) For those parcels used for agriculture 5 did not report the use

5.2.2. Characteristics of residential parcels

Respondents were asked to provide information on parcel characteristics in terms of access to road, water, electricity, and communication services. The summary descriptive is reported in Table 22. Tap water and private well are the two major water sources for the residential parcels in the study area with 59% of residential parcels (59% in treatment and 62% in the control area) and 22% (23% in treatment area and 17% in the control area) reported to have parcels accessible to tap water and private well, respectively. Less than 10% of residential parcels in both the treatment and control areas reported having access to water from other sources (i.e., river/lake, public fountain and borehole) (Table 22).

In terms of road access, more than 40% of the parcels in the sample are connected to a tertiary road. In addition, 15% and 4% of parcels reported to have parcels connected to a secondary and

primary road, respectively. Twenty three percent of households (22% in treatment and 30% in the control area) reported to have parcels connected to unpaved road (Table 22).

Almost 45% of residential parcels reported to have access to electricity (Table 22). While the landline phone is only available to 1% of the parcels; 90% of them (91% in treatment and 86% in control area) have access to a mobile phone network. But as reported in the previous section, 57% of households (60% in treatment and 52% in control area) actually own a mobile phone. Testing of mean difference between the control group and the treatment group suggests that accessibility to various services and amenities is in general better in the treatment area than in control area.

Table 22: Access to utility and infrastructure in parcels used for residence purpose (b)

| Item | Treatment | | Control | | Total | | Testing (a) |
|---|-----------|-------|---------|-----|-------|-------|----------------|
| | (T) | | (C) | | | | |
| | Mean | N | Mean | N | Mean | N | |
| % parcels by source of water most used in the parcels: | | | | | | | |
| Tap | 58.5% | 1,541 | 62.4% | 603 | 59.2% | 2,144 | **T>C |
| Borehole | 2.1% | 1,541 | 3.7% | 603 | 2.4% | 2,144 | |
| Well private | 23.3% | 1,541 | 16.5% | 603 | 22.1% | 2,144 | |
| Public fountain | 7.3% | 1,541 | 8.2% | 603 | 7.5% | 2,144 | |
| River/lake | 6.9% | 1,541 | 7.9% | 603 | 7.1% | 2,144 | |
| Other | 1.9% | 1,541 | 1.3% | 603 | 1.8% | 2,144 | |
| % parcels by route of access most used in the parcels: | | | | | | | |
| Primary road | 3.3% | 1,541 | 7.1% | 603 | 4.0% | 2,144 | *T<C |
| Secondary road | 15.3% | 1,541 | 14.7% | 603 | 15.2% | 2,144 | |
| Tertiary road | 43.1% | 1,541 | 35.4% | 603 | 41.7% | 2,144 | *T>C |
| Unpaved road | 21.7% | 1,541 | 30.0% | 603 | 23.2% | 2,144 | **T<C |
| Other | 16.6% | 1,541 | 12.7% | 603 | 15.9% | 2,144 | **T>C |
| % of parcels with other amenities on the parcels (c): | | | | | | | |
| %hh that have electricity in their parcels | 45.4% | 1541 | 41.4% | 603 | 44.7% | 2144 | **T>C |
| % hh that have landline in their parcels | 1.2% | 1541 | 0.9% | 603 | 1.1% | 2144 | ***T>C |
| % hh that have access to mobile network in their parcels | 90.6% | 1541 | 85.8% | 603 | 89.8% | 2144 | ***T>C |
| % hh owning parcels with fruit trees (d) | 66.7% | 1535 | 56.5% | 605 | 64.9% | 2140 | *T>C |
| Average total number of fruit trees per hh per parcel | 8.2 | 968 | 3.9 | 334 | 7.5 | 1302 | ***T>C |
| Average number of buildings per parcel (e) | 1.2 | 1545 | 1.2 | 607 | 1.2 | 2152 | |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing (comparing (Treatment) and (Control): * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

(b) 10 parcels with no information on the access to services

(d) 14 parcels in did not report whether there was fruit trees on the parcels.

(e) 2 parcels did not report the number of buildings

Comparison between the two cities and between treatment and control areas within the city shows significant difference in access to utility and infrastructure by residential parcels (Annex Table A3.22 and A4.22). For example, almost 62% of residential plots are connected with tap water in Nampula city (significantly more in the control bairros); only 43% of residential plots in Monapo are connected with tap water (but no significant difference between treatment and control bairros). On the other hand, a significantly higher number of residential plots in Monapo (13%) rely on rivers/lakes as the main water source than in Nampula (6.1%) (but no significant difference between treatment and control bairros within a city). Consistent with the case of tap water, the share of parcels that are connected with electricity (or mobile network) is also significantly higher in Nampula than in Monapo Vila (48% vs. 23%, or 91% vs. 82% for mobile network). Within Nampula, the share of parcels with electricity is significantly higher in control bairros than in treatment bairros (A4.22).

5.2.3. Land acquisition

The sample includes 1,979 observations on parcels located in the treatment and control areas that are owned by the surveyed households and are either currently in their possession or rented out/lent to others, and for which the form of acquisition was reported. Table 23 reports the share of these 3,475 parcels acquired through different acquisition modes. We note that 51% of the parcels were acquired through land purchase, which is the most common mode of land acquisition in the study area. Inheritance is the second most important mode of transaction with 17% of parcels being acquired through that mode. In addition, 14% and 11% of parcels were acquired through cession by relatives and occupation, respectively. About 8% of parcels were acquired from traditional or formal authorities (Table 23).

Table 23. Parcel distribution by mode of acquisition (for parcels in the possession of the households and those rented-out)

| Item (b) | Treatment (T) | | Control (C) | | Total | | Testing (a) |
|----------------------------------|------------------|-------|----------------|-----|-------|-------|----------------|
| | Mean | N | Mean | N | Mean | N | |
| Ceded by traditional authorities | 4.0% | 1,416 | 6.6% | 563 | 4.5% | 1,979 | **T<C |
| Ceded by formal authorities | 2.7% | 1,416 | 2.6% | 563 | 2.7% | 1,979 | |
| Ceded by relatives | 13.3% | 1,416 | 14.3% | 563 | 13.5% | 1,979 | *T<C |
| Occupied | 10.9% | 1,416 | 9.1% | 563 | 10.6% | 1,979 | |
| Purchased | 51.3% | 1,416 | 50.9% | 563 | 51.2% | 1,979 | **T>C |
| Inherited | 17.1% | 1,416 | 16.0% | 563 | 16.9% | 1,979 | |
| Other | 0.7% | 1,416 | 0.5% | 563 | 0.6% | 1,979 | |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing (comparing (Treatment) and (Control): * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

If not noted, no significant was found differences

(b) 15 parcels did not report the form of acquisition

A formal t-test of equality of shares of parcels acquired via each of the different transaction modes between the treatment and control group yields significant differences for the following forms of acquisition—ceded by traditional authorities (4% in treatment vs. 4.5% in control areas), ceded by relatives (13.3% in treatment vs. 14.3% in control areas), and purchased (51.3%

in treatment vs. 50.9% in control areas). The difference in acquisition through other forms of acquisition is relatively small between two groups (Table 23).

Comparison across location yields additional insights (see Annex Table A3.23). The importance of each of the different modes of acquisition in both locations is extremely similar. First of all, purchase is the most important mode in both locations (51% in Nampula city and 52% in Monapo Vila). The percentage of parcels acquired by each individual mode is insignificant between the two locations for five of the six main modes of acquisition. The percentage of parcels acquired through illegal occupation is significantly higher in Nampula city than in Monapo vila (11% vs. 7%). In terms of comparison between treatment and control bairros within the two cities, the importance of different modes of acquisition is not statistically significant in Nampula. In Monapo, the only significant difference is in the mode of acquiring land through traditional authorities with the share of that mode in control bairros being 6.7% as versus 3.6% in treatment bairros (Annex Table A4.23).

Table 24. Agencies involved in and the cost of land acquisition (for parcels in the possession of the households and those rented-out)

| Item | Treatment | | Control | | Total | | Testing (a) |
|--|-----------|-----|----------|-----|----------|------|----------------|
| | (T) | | (C) | | | | |
| | Mean | N | Mean | N | Mean | N | |
| % by people involved in the acquisition of parcel (b): | | | | | | | |
| Community leaders | 87.2% | 851 | 88.5% | 333 | 87.5% | 1184 | *T>C |
| Local court | 2.6% | 851 | 2.1% | 333 | 2.5% | 1184 | |
| District authorities | 0.4% | 851 | 0.0% | 333 | 0.3% | 1184 | *T>C |
| Lawyer | 2.7% | 851 | 2.2% | 333 | 2.6% | 1184 | |
| Other | 20.2% | 851 | 19.9% | 333 | 20.2% | 1184 | |
| Average No. of agencies involved | 1.13 | 851 | 1.13 | 333 | 1.13 | 1184 | |
| Average total cost of acquiring the parcel with involvement of an agent/institution(Mt): | | | | | | | |
| Community leaders | 19.88 | 723 | 13.28 | 289 | 18.71 | 1012 | ***T>C |
| Local court | 54.08 | 20 | 1,673.39 | 8 | 304.09 | 28 | *T<C |
| District authorities | 1.00 | 1 | n/a | 0 | 1.00 | 1 | |
| Lawyer | 164.69 | 27 | 0.00 | 7 | 139.61 | 34 | **T>C |
| Other | 0.23 | 168 | 59.90 | 69 | 10.72 | 237 | **T>C |
| Value paid to acquire the parcel aside from the above fees (Mt) | 6,878.90 | 851 | 7,659.27 | 333 | 7,014.33 | 1184 | **T<C |
| Total value paid for acquisition of the parcel (Mt) | 6,901.48 | 851 | 7,718.54 | 333 | 7,043.28 | 1184 | **T<C |
| Total value paid for acquisition of the parcel(Mt/m2) (c) | 19.29 | 847 | 40.11 | 331 | 22.91 | 1178 | ***T<C |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing (comparing (Treatment) and (Control): * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

(b) Multiple agents/authorities are allowed. Ten parcels had missing data on the agents involved in land acquisition

(c) There are 138 missing values generated in the estimation of acquisition cost per area due to the fact that the area was not reported

In terms of agency involved in land acquisition (Table 24), almost 88% of the land acquisition involves community leaders, with the involvement not significantly different in the treatment groups (87%) and the control group (89%). Other agencies (unidentified) were involved in

acquisition of 20% of the parcels. Local court and lawyer were involved in another 5% of the parcel acquisitions (roughly 2.5% each). Only 0.3% of land acquisition involved district authorities, suggesting that land acquisition is mainly a local matter. An average acquisition involves 1.13 agencies, although many parcels were acquired without any involvement of an agent or an authority (Table 24).

Comparing agency's involvement between the treatment and control groups, the data show that there are significantly more transactions involving courts and lawyers in the treatment area than in the control area (2.6% vs. 2.1% for courts and 2.7% vs. 2.2% for lawyers) (Table 24). In Monapo, land transactions involving lawyers were significantly more in the treatment areas than in control areas (Annex Table A4.24). Other than this, the differences in the involvement of different agencies was not statistically significant in Nampula or Monapo.

In terms of cost, the average payment to acquire a parcel is about 7,000 MT per parcel with a huge and statistically significant discrepancy between the treatment and control group. The payment in the control areas is 7,659 MT, which is about 800 MT more than the payment (6,879 MT) in the treatment areas. The average fee paid to community leaders, local courts and lawyers during the land acquisition process represents only a minor cost when averaged across all the parcels in the sample (Table 24).

Like the case of mode of acquisition, agency's involvement in land acquisition between the locations is also very similar (Annex Table A3.24). Community leaders are involved in majority of the land acquisitions in both locations (87% in Nampula and 88% in Monapo vila). Local courts and lawyers, each are involved in 2% of the land acquisitions in both locations. The involvement of the district authorities is negligible in both locations. The difference in cost of involving different agencies in land acquisition between the two locations is more noticeable. On average, the cost of involving community leaders, local court, lawyer is in general higher in Monapo vila than Nampula city. The average total cost of acquiring a parcel in Monapo vila is 50% higher than that in Nampula (32 Mt/m² vs. 21 Mt/m²). However, this difference is not statistically significant.

5.2.4. Land documents

As expected, a majority of land parcels do not have any land documents (65% on average across the treatment and control groups) (Table 25). Among those parcels that do have some kind of land documents, the documents are mostly informal. Twenty nine percent of the land parcels (28.7% in the treatment area and 29.3% in the control area) have affidavit of purchase/sales. Less than 5% of parcels have some kind of formal legal documents (2.4% with provisional title, 2.1% with certificate of cadastral services, and 0.4% with DUAT) (Table 25). Comparing land documents across location and gender of the head of hh, there is very little difference in land documents between male-headed households and female-headed households (Annex Table A3.25). For example, while 32% of the parcels in Monapo have affidavit of purchase/sales, 28% of parcels in Nampula have the same type of document. Similarly, the type of land documents possessed by parcel holders is very similar across the treatment and control bairros within the two cities (Annex Table A4.25).

Respondents were asked to provide detailed information on procedures and cost of obtaining DUAT. Specific questions included time taken, formal and informal payments to different government agencies to obtain DUAT. It turns out that most of the questions on DUAT are not relevant in the baseline survey because only 12 parcels in the entire sample (10 in the treatment area and 2 in the control area) have received DUAT (Table 25). Due to the extremely small sample size, we are not able to provide a detailed discussion on these questions.

Table 25: Types of Land Documents Currently in Possession by Parcel Holders (for parcels in the possession of the households and those rented-out)

| Item | Treatment (T) | | Control (C) | | Total | | Testing (a) |
|---|------------------|-------|-----------------|-----|-------|-------|----------------|
| | Mean | N | Mean | N | Mean | N | |
| | | | | | | | |
| % parcels by type of documents currently existent that give them property rights to the parcel (b): | | | | | | | |
| DUAT | 0.5% | 1,420 | 0.0% | 567 | 0.4% | 1,987 | ***T>C |
| Provisional title | 2.2% | 1,420 | 3.2% | 567 | 2.4% | 1,987 | **T<C |
| Certificate of cadastral services | 2.1% | 1,420 | 2.4% | 567 | 2.1% | 1,987 | |
| Affidavit of purchase/sales | 28.7% | 1,420 | 29.3% | 567 | 28.8% | 1,987 | *T<C |
| Other | 1.2% | 1,420 | 0.8% | 567 | 1.1% | 1,987 | |
| None | 65.4% | 1,420 | 64.3% | 567 | 65.2% | 1,987 | *T<C |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing (comparing (Treatment) and (Control): * indicates significant difference at 10% level, ** at 5%, and *** at 1%. If not noted, no significant difference was found

(b) 7 parcels did not provide information about the type of documents that confers the use right of the parcels

The extremely low incidence of actual DUAT does not seem to imply that DUAT is not valuable to households. As indicated in Table 26, on average 2.4% of parcel holders (2.2% in treatment areas and 2.9% in control areas) have initiated the process of obtaining DUAT at the time of the baseline survey. As indicated in Annex Table A4.26, a significantly more households in control villages in Monapo (3.9%) have initiated the process of obtaining DUAT than in the treatment villages (2.0%). Among the remainder parcel holders across the two cities that have neither obtained nor initiated the process of obtaining DUAT, 87% (87.4% in treatment group and 85% in the control group) are interested in obtaining DUAT (Table 26). In terms of willingness to pay to obtain a DUAT, an average parcel holder is willing to pay 320 MT to obtain a DUAT. On average, households in the treatment area are willing to pay significantly less per parcel to obtain DUAT than those in the control area (307 MT in the treatment area compared to 381 MT for the latter). This difference also holds in terms of willingness to pay for DUAT on per square meter basis also. The willingness to pay for obtaining DUAT per square meter is much higher for residential parcels (which are smaller) than for agricultural parcels (which are larger), implying that the cost components represent fixed costs that do not vary with parcel size (Table 26).

Households' interests in obtaining DUAT and their willingness to pay for DUAT are surprisingly similar in both locations (Annex Table A3.26). For example, share of households who are interested in obtaining DUAT is 87% in Nampula city, and 86% in Monapo vila. Similarly, an average household from both locations are willing to pay roughly 320 MT. The difference between male headed households and female headed households is also very smaller

Table 26: Interest and willingness to pay for DUAT (for parcels in the possession of the households and those rented-out)

| Item | Treatment (T) | | Control (C) | | Total | | Testing (a) |
|---|------------------|-------|----------------|-----|--------|-------|----------------|
| | Mean | N | Mean | N | Mean | N | |
| % parcels that have no DUAT and have initiated the process of obtaining DUAT (b) | 2.2% | 1,406 | 2.9% | 562 | 2.4% | 1,968 | |
| Among the parcel with no DUAT and have not initiated the process of obtaining it: | | | | | | | |
| % parcels in which there is an interest in obtaining DUAT | 87.4% | 1,369 | 85.0% | 543 | 87.0% | 1,912 | |
| Average amount per parcel that the hh is willing to pay to obtain DUAT (MT) (c) | 306.61 | 1,213 | 380.91 | 480 | 319.83 | 1,693 | **T<C |
| Average amount per parcel that the hh is willing to pay to obtain DUAT per square meter (MT/m ²) (d) | 1.26 | 1209 | 1.76 | 476 | 1.35 | 1685 | *T>C |
| Average amount per parcel that the hh is willing to pay to obtain DUAT per square meter per main use of the parcel (MT/m²): | | | | | | | |
| Residence | 1.41 | 1017 | 2.01 | 404 | 1.51 | 1421 | *T<C |
| Agriculture | 0.17 | 192 | 0.18 | 72 | 0.18 | 264 | |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing: * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

(b) 6 parcels did not report whether they have initiated the process of obtaining DUAT and thus not included in this analysis.

(c) 301 parcels did not report the value they are willing to pay for obtaining DUAT

(d) 645 parcels generated missing values in the estimation of willingness to pay for DUAT per area

5.2.5. Hypothetical land sales and land rental prices

Respondents were also asked to provide information on hypothetical land prices (both rental and sale) for the parcels they own (either in their possession or rented out). The results of this section are reported in Table 27. The average hypothetical land sales price among surveyed parcel holders is 66,517 MT or 267 MT/m², ranging from 64,556 MT (or 314.33 MT/m²) in control area to 66,959 MT (or 256.47 MT/m²) in the treatment area. And the hypothetical rental price is roughly 5,186 MT/month, varying from 2,071 MT/month in the control area to 5,886 MT/month in the control area (Table 27). T-test for mean differences of sale and rental prices between the treatment and control groups suggest that both the sale price and rental price is significantly higher in the treatment area than in the control area for most types of land use (Table 27). Also, among the types of parcels by main use, the hypothetical value of residential parcels is significantly higher than the value for agriculture use on a per square meter basis.

Disaggregation of hypothetical sale and rental prices by cities suggest a considerable variation across regions and gender of the head of the household but no statistical difference (Annex Table A3.27 and A4.27). Comparison of treatment and control areas within Nampula city also suggests

similar variation but no statistical difference (Table A4.27). In Monapo, for two of the indicators (average rental value of the whole parcel and per square meter) in Table A4.27 the baseline values are significantly higher in the treatment bairros than in the control bairros.

Table 27. Hypothetical sale and rental prices of parcels belonging to the household surveyed

| Item | Treatment (T) | | Control (C) | | Total | | Testing (a) |
|---|------------------|-----|----------------|-----|-----------|-------|----------------|
| | Mean | N | Mean | N | Mean | N | |
| Average total value the parcel could be sold for (MT) (b) | 66,959.38 | 866 | 64,556.73 | 361 | 66,517.63 | 1,227 | **T>C |
| <u>Average total value per main plot use:</u> | | | | | | | |
| Residence | 66,428.87 | 720 | 62,123.48 | 310 | 65,619.78 | 1,030 | **T>C |
| Agriculture | 70,311.34 | 146 | 83,634.78 | 51 | 72,405.50 | 197 | **T<C |
| Average total value the parcel could be sold for (MT/m ²) (c) | 256.47 | 864 | 314.33 | 358 | 267.07 | 1,222 | **T<C |
| <u>Value per main use:</u> | | | | | | | |
| Residence | 289.21 | 718 | 350.39 | 307 | 300.67 | 1,025 | *T<C |
| Agriculture | 50.46 | 146 | 33.96 | 51 | 47.86 | 197 | ***T>C |
| Average value a room for housing if the parcel could be rented out for (MT/month) (d) | 563.90 | 556 | 345.97 | 227 | 526.50 | 783 | **T>C |
| Average value a room for commercial purposes in the parcel could be rented out for (MT/month) (e) | 548.00 | 476 | 653.01 | 189 | 564.94 | 665 | *T<C |
| Average value the whole parcel could be rented out for (MT/month) (f) | 5,886.16 | 746 | 2,071.17 | 322 | 5,186.38 | 1,068 | **T>C |
| Average monthly value the whole parcel could be rented out for (MT/m ²) (g) | 28.79 | 745 | 7.89 | 320 | 24.97 | 1,065 | ***T>C |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing (comparing (Treatment) and (Control): * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

Notes

(b) 770 parcels provided no hypothetical value

(c) For this calculation, 772 missing values were generated on the parcels without land size value

(d) 1,211 parcels with no information on the rental value

(e) 1,329 parcels with no information on the rental value

(f) 926 parcels with no information on the rental value

(g) 3 missing data due to missing information on land size

5.2.6. Land conflict and perceived risks

The respondents were asked to provide information on actual land conflicts they have experienced in the past and potential conflicts they perceive to occur in the future. Their responses are summarized in Table 28. Unfortunately, only 67 parcel holders responded to the question on whether they experienced any conflict in the past. Out of these 67 respondents, there were only two households that had experienced land conflicts at the time of obtaining the parcel. For such a small number of incidents, the responses on the nature of the conflict do not provide any meaningful insight and are therefore not reported.

In terms of potential land conflicts in the future, 18% of all parcel holders perceived to have potential land conflict in the future. The difference between the treatment and control group is not statistically significant. For this sub-set of respondents that perceived to have conflict in future (parcel holders of 353 parcels), the most common response to the question “with whom they perceived to have conflict with” was formal authorities (43% of respondents, with no significant difference between treatment and control group). Neighbors and family were cited as the second and third most common source of conflict (32% and 11%, respectively). About four percent and 3.3% also mentioned traditional leaders and immigrants as potential sources of conflict, respectively. Except for neighbors where the difference is significant between treatment and control groups, the difference is not significant for all other categories of responses (Table 28).

Respondents were also asked about the nature of the potential conflicts. Potential conflicts were noted to be most commonly related to the loss of parcels due to lack of DUATs (33%). This is followed by issues related to boundary (28%), confiscation by authority (19%), and disagreement between heirs (inheritance issues – 8%). Incomplete demarcations was cited as the cause of conflict by significantly more parcel holders in the treatment areas than in the control areas, and weak cadastral services and boundary errors were cited as causes of conflict by a significantly more parcel owners in the control areas (Table 28).

Finally, respondents were also asked how probable they think the potential conflicts would result in the loss of their parcel (ranging from “highly probable” to “not probable”. More than half of households (51% overall, or 52% in the treatment area, which is significantly higher than 47% in the control area) felt it is somewhat probable that they would lose their parcel as a result of a conflict, followed by “highly probable” (26%) and “moderately probable” (12%) (Table 28). Only 6% of households think it is not probable and another 4% didn’t know how to answer this question. Except for the “somewhat probable” category, the difference for the other categories is not statistically significantly.

The comparisons between the two cities and between male-headed and female-headed households are summarized in Annex Table A3.28. While there are very few incidents in the past for all groups, the difference for many categories related to perceived future conflicts is statistically significant between Nampula city and Monapo vila and between male-headed households and female headed households. The comparison between the treatment and control

bairros within the two cities is presented in Annex Table A4.28. The perceived future conflicts and types of conflicts varies between the two groups but in Monapo vila the differences in these perceptions are not statistically significant. In Nampula, the percentage parcel holders citing neighbors as the source of conflict and boundary issues as the cause of conflict were significantly more in the control bairros than in the treatment bairros (Annex Table A4.28).

Table 28. Land conflicts experienced in the past and/or perceived in the future

| Item | Treatment (T) | | Control (C) | | Total | | Testing (a) |
|--|------------------|-------|----------------|-----|-------|-------|----------------|
| | Mean | N | Mean | N | Mean | N | |
| % parcels that experienced land conflicts (b) | 3.4% | 44 | 1.5% | 23 | 3.0% | 67 | ***T>C |
| % parcels concerned of having conflict in future (c) | 17.9% | 1,420 | 17.6% | 567 | 17.8% | 1,987 | |
| Among hh concerned, % parcels s citing the following entities as the potential cause of conflict: | | | | | | | |
| Traditional leaders | 3.8% | 250 | 3.5% | 103 | 3.7% | 353 | **T<C |
| Formal authorities | 43.9% | 250 | 36.3% | 103 | 42.5% | 353 | |
| Family | 12.0% | 250 | 8.1% | 103 | 11.3% | 353 | |
| Neighbors | 29.1% | 250 | 46.2% | 103 | 32.2% | 353 | |
| Firms | 6.2% | 250 | 3.1% | 103 | 5.6% | 353 | |
| Immigrants | 3.8% | 250 | 1.0% | 103 | 3.3% | 353 | |
| Other | 1.2% | 250 | 1.9% | 103 | 1.3% | 353 | |
| Among hh concerned, % hhs citing the following issues as potential cause of conflict | | | | | | | |
| Boundary errors | 25.0% | 250 | 41.1% | 103 | 27.8% | 353 | **T<C |
| Weak cadastral services | 1.8% | 250 | 2.2% | 103 | 1.9% | 353 | **T<C |
| Disagreement between heirs | 7.8% | 250 | 6.9% | 103 | 7.6% | 353 | **T>C |
| Incomplete demarcation | 1.9% | 250 | 1.2% | 103 | 1.8% | 353 | |
| Sales to more than one person | 0.0% | 250 | 0.4% | 103 | 0.1% | 353 | |
| Poor consultation with community leader | 2.2% | 250 | 2.9% | 103 | 2.3% | 353 | |
| Lost parcel due to lack of DUAT | 34.4% | 250 | 26.1% | 103 | 33.0% | 353 | |
| Parcel recovered by the authorities | 19.4% | 250 | 15.8% | 103 | 18.8% | 353 | |
| Other | 5.3% | 250 | 3.3% | 103 | 4.9% | 353 | |
| Among hh concerned, % hhs reporting the following as the level of probability of losing the parcel due to conflict: | | | | | | | |
| Highly probable | 24.2% | 250 | 31.1% | 103 | 25.5% | 353 | **T>C |
| Moderately probable | 11.5% | 250 | 12.0% | 103 | 11.6% | 353 | |
| Somewhat probable | 51.5% | 250 | 47.2% | 103 | 50.7% | 353 | |
| Not probable | 6.0% | 250 | 5.8% | 103 | 6.0% | 353 | |
| Does not know | 4.5% | 250 | 3.8% | 103 | 4.4% | 353 | |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing (comparing (Treatment) and (Control): * indicates significant difference at 10% level, ** at 5%, and *** at 1%

(b) 1,927 parcels did not respond to the question and are thus treated as missing observations

(c) 7 parcels did not respond to the question about the concern of having land conflict in future and are thus considered missing observations.

5.2.7. Land market

Respondents were asked to provide information on rental participation and the contractual details such as relationship with rental partners and contract length. The results are reported in Table 29 for parcels rented-out and in Table 30 for parcels rented-in.

Table 29. Information on parcels rented-out

| Item | Treatment | | Control | | Total | | Testing (a) |
|--|-----------|-------|---------|-----|-------|-------|----------------|
| | Mean | N | Mean | N | Mean | N | |
| % hh that have parcels rented out or lent to other | 7.9% | 1,034 | 5.0% | 656 | 6.7% | 1,690 | |
| % parcels rented-out | 3.8% | 1547 | 3.3% | 607 | 3.7% | 2154 | *T>C |
| For those that have rented out/lent to others: | | | | | | | |
| % of parcels by the relationship of the tenant to the owner of the parcel (b): | | | | | | | |
| Head | 1.5% | 62 | 2.9% | 25 | 1.8% | 87 | |
| Spouse | 1.5% | 62 | 0.0% | 25 | 1.1% | 87 | |
| Child | 0.6% | 62 | 3.4% | 25 | 1.3% | 87 | |
| Sibling | 6.2% | 62 | 19.3% | 25 | 9.6% | 87 | ***T<C |
| Parent | 0.0% | 62 | 0.0% | 25 | 0.0% | 87 | |
| Niece/nephew | 3.1% | 62 | 4.9% | 25 | 3.5% | 87 | **T<C |
| Other relatives | 13.6% | 62 | 24.4% | 25 | 16.4% | 87 | **T<C |
| Nonrelatives | 73.7% | 62 | 45.2% | 25 | 66.2% | 87 | **T>C |
| % of parcel holders receiving payment in cash | 97.7% | 66 | 14.8% | 21 | 87.5% | 87 | ***T>C |
| % of parcel holders with rental contract with the tenants | 28.1% | 65 | 30.7% | 20 | 28.4% | 85 | |
| Average number of years since the tenant acquired the use right over this parcel up to now | 4.0 | 63 | 4.0 | 19 | 4.0 | 82 | |
| % of parcel holders renting those buildings | 95.4% | 41 | 34.9% | 12 | 88.4% | 62 | ***T>C |
| Average number of buildings per parcel within the parcels rented-out | 0.96 | 66 | 0.81 | 21 | 0.95 | 87 | |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing (comparing (Treatment) and (Control): * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

(b) 7 parcels did not provide information on the relationship of the tenant with the owner

Overall, very few households rent out land parcels (3.8% in the treatment and 3.3% in the control area) (Table 29). In terms of relationship between tenants and landlords, about one-third of renting transaction involved some kind of relationship, with renting between siblings the most common (9.6%) and prevalent significantly more in control areas (19.3%) than in treatment areas (6.2%). A majority of rental transactions (88%) involve renting of buildings with significant difference between treatment and control area (95% and 35% in the treatment and control areas, respectively). Eighty eight percent of the rental transactions involve cash payment, with significantly more in the treatment areas (98%) than in the control areas (15%). Only 28% of rental transactions have formal written contracts and average rental length is 4 years.

Table 30. Information on renting-in parcels

| Item | Treatment (T) | | Control (C) | | Total | | Testing (a) |
|--|------------------|-------|----------------|-----|-------|-------|----------------|
| | Mean | N | Mean | N | Mean | N | |
| % hhs that have parcels rented-in or borrowed from other | 23.5% | 1,034 | 10.2% | 656 | 17.9% | 1,690 | ***T>C |
| % parcels rented-in or borrowed from others | 8.2% | 1,547 | 5.6% | 607 | 7.8% | 2,154 | ***T>C |
| For those that have rented in/borrowed from others: | | | | | | | |
| % parcels by the relationship of the owner of the parcel with the HH renting-in the parcel (b): | | | | | | | |
| Head | 0.0% | 106 | 0.0% | 38 | 0.0% | 144 | |
| Spouse | 0.0% | 106 | 5.5% | 38 | 0.7% | 144 | |
| Child | 0.0% | 106 | 0.0% | 38 | 0.0% | 144 | |
| Sibling | 3.9% | 106 | 2.8% | 38 | 3.7% | 144 | *T>C |
| Parent | 0.3% | 106 | 2.0% | 38 | 0.5% | 144 | |
| Niece/nephew | 3.4% | 106 | 0.0% | 38 | 3.0% | 144 | **T>C |
| Grandchild | 0.0% | 106 | 0.0% | 38 | 0.0% | 144 | |
| Other relative | 25.0% | 106 | 12.7% | 38 | 23.4% | 144 | *T>C |
| Nonrelatives | 67.5% | 106 | 77.0% | 38 | 68.7% | 144 | **T<C |
| % parcels reporting having rental contract | 7.2% | 105 | 5.4% | 39 | 7.0% | 144 | *T>C |
| % parcels by people involved in the rental process : | | | | | | | |
| Community leaders | 9.1% | 105 | 0.9% | 39 | 8.1% | 144 | ***T>C |
| Local court | 0.0% | 105 | 0.0% | 39 | 0.0% | 144 | |
| District authority | 0.0% | 105 | 0.8% | 39 | 0.1% | 144 | |
| Lawyer | 0.0% | 105 | 0.0% | 39 | 0.0% | 144 | |
| Other | 16.4% | 105 | 8.3% | 39 | 15.3% | 144 | *T>C |
| % parcels with no involvement of an agent/institution in the renting process | 75.0% | 105 | 90.1% | 39 | 77.0% | 144 | *T<C |
| For the parcels with at least one agent involved, average No. of people involved in the rental of a parcel (c) | 1.02 | 22 | 1.00 | 5 | 1.02 | 27 | |
| Average total cost paid for the renting process per parcel (Mt) | 1.16 | 22 | 0.00 | 5 | 1.10 | 27 | **T>C |
| % hhs reporting payment in cash | 17.3% | 72 | 22.9% | 5 | 16.1% | 35 | |
| Average time past since the parcels had use right (years) | 5.98 | 106 | 5.89 | 39 | 5.97 | 145 | |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing (comparing (Treatment) and (Control): * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

(b) 16 parcels did not reported their rental information

(c) 133 parcels with no information on agents involved in land acquisition

(d) 127 parcels with no information on rental rate

Compared to renting out, renting in is more common as illustrated by the fact that 18% of all the households (24% in the treatment area and 10% in the control area) rented in land parcels (Table 30). In terms of relationship between the renters and landlords, 69% of the transactions were between non-relatives, 23% between other relatives, and the rest were between family members. Only 7% of rental transactions have formal contracts. About 8% of the renting transactions involve community leaders (Table 30). The treatment and control areas differ significantly on many aspects of the rental markets from the perspective of tenants of the parcels located in the study area (Table 30 and Annex Table A4.30).

Table 31 provides the average size of rented parcels in the study area, and monthly rental value per parcel and per square meter by parcel use. The average size of rental land is 1860 m² (1890 m² in the treatment area and 1612 m² in the control area with no statistical difference between the two groups though), which encompasses 407 m² of rental land for residence purpose and 4687 m² for agriculture purpose (Table 31). The average monthly rental value of 118 parcels in the study area of Monapo and Nampula cities is estimated to be about 4 Mt/m², with the rental value significantly more in the control area (12.8 Mt) than in the treatment area (2.9 Mt). As indicated by the breakdown in Table A4.31, the rental value is significantly more in the control areas of Nampula than in treatment areas. The average rental value of residential parcels across the two cities is 6 Mt/m² compared with 0.12 Mt/m² for agricultural parcels. Again, the rental value for residential parcels is significantly higher in control areas than in the treatment areas (Table 31); with most of this higher value observed in the control areas of Nampula city than in treatment areas (Annex Table A4.31).

Table 31. Information on rental values of parcels in the treatment and control areas by parcel use

| Item | Treatment (T) | | Control (C) | | Total | | Testing (a) |
|---|---------------|----|-------------|----|----------|-----|-------------|
| | Mean | N | Mean | N | Mean | N | |
| Average monthly rent paid per parcels rented (Mt/month) (b) | 982.99 | 91 | 3,853.20 | 27 | 1,298.07 | 118 | **T<C |
| Average area of land currently rented per parcel (m ²) | 1,890.17 | 91 | 1,612.92 | 27 | 1,859.73 | 118 | |
| Average monthly rent paid per parcels rented-in (Mt/m ²) | 2.90 | 91 | 12.80 | 27 | 3.99 | 118 | **T<C |
| Monthly rental rate by use (for agriculture and residence use only): | | | | | | | |
| <u>Residence</u> | | | | | | | |
| Average total size of land currently rented (m ²) | 1,013.10 | 64 | 5,589.83 | 18 | 1,535.09 | 82 | ***T<C |
| Average area of land currently rented per parcel (m ²) | 380.66 | 64 | 613.73 | 18 | 407.24 | 82 | |
| Average total value of rent per parcel (Mt/m ²) | 4.34 | 64 | 18.63 | 18 | 5.97 | 82 | **T<C |
| <u>Agriculture</u> | | | | | | | |
| Average total size of land currently rented (m ²) | 925.19 | 27 | 53.21 | 9 | 836.72 | 36 | |
| Average area of land currently rented per parcel (m ²) | 4,787.27 | 27 | 3,799.29 | 9 | 4,687.03 | 36 | |
| Average total value of rent per parcel (Mt/m ²) | 0.13 | 27 | 0.05 | 9 | 0.12 | 36 | |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing (comparing (Treatment) and (Control): * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

(b) A total of 254 parcels are rented (in/out) of which 124 are used for residence and 130 for agriculture. Out of 254 parcels, 36 parcels do not have information on rental values.

In terms of past rental participation, only 1.7% of households (or 29 households) reported renting in parcels in the last five years but having stopped renting-in in the past 0.30 years (0.34 years in the treatment area and 0.28 years in the control area) (Table 32). Given the small sample size of households reporting past rental, it is difficult to derive any meaningful comparisons across treatment and control areas.

Table 32: Rental participation in the past 5 years

| Item | Treatment (T) | | Control (C) | | Total | | Testing (a) |
|---|---------------|------|-------------|-----|--------|------|-------------|
| | Mean | N | Mean | N | Mean | N | |
| % hhs that rented-in parcels in the last 5 years | 1.4% | 1034 | 2.3% | 656 | 1.7% | 1690 | *T<C |
| Average area of land rented-in in the last 5 years per household (m2) | 443.99 | 4 | 649.71 | 9 | 578.21 | 13 | |
| % hh with rental agreement | 57.8% | 4 | 18.5% | 9 | 33.3% | 13 | **T>C |
| % hh by uses of parcels rented-in: | | | | | | | |
| Residence | 100.0% | 4 | 83.2% | 9 | 89.6% | 13 | ***T>C |
| Agriculture | 0.0% | 4 | 16.8% | 9 | 10.4% | 13 | ***T<C |
| Commerce | 0.0% | 4 | 0.0% | 9 | 0.0% | 13 | |
| Time past since stopped renting (years) | 0.34 | 4 | 0.28 | 9 | 0.30 | 13 | |
| % hhs by reasons why stopped renting parcels: | | | | | | | |
| Owner needed the parcels | 22.4% | 4 | 19.5% | 9 | 20.6% | 13 | |
| Household did not need parcel | 57.8% | 4 | 80.5% | 9 | 71.9% | 13 | *T<C |
| Other reason | 19.9% | 4 | 0.0% | 9 | 7.5% | 13 | |
| Average rental rate at the time the households stopped renting (Mt) | 212.17 | 3 | 298.28 | 6 | 265.59 | 9 | ***T<C |
| <u>Rental rate per use:</u> | | | | | | | |
| Residence | 212.17 | 3 | 298.28 | 6 | 265.59 | 9 | ***T<C |
| Agriculture | n/a | 0 | n/a | 0 | n/a | 0 | |
| Commerce | n/a | 0 | n/a | 0 | n/a | 0 | |
| Average rental rate at the time the households stopped renting (Mt/m ²) | 1.06 | 3 | 0.90 | 6 | 0.96 | 9 | *T>C |
| <u>Rental rate per use:</u> | | | | | | | |
| Residence | 1.06 | 3 | 0.90 | 6 | 0.96 | 9 | |
| Agriculture | n/a | 0 | n/a | 0 | n/a | 0 | |
| Commerce | n/a | 0 | n/a | 0 | n/a | 0 | |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

5.2.8. Land investment

Respondents were asked questions on various types of investments made on land parcels in the past 12 months. Table 33 summarizes shares of households who made land investment and the total value of investment during the past 12 months.

Twenty eight percent of households (28% in the treatment and 24% in the control area) made at least one type of investment in the past 12 months. The most popular types of investments are

related to roof improvement, construction of new buildings/houses and electrification with 39%, 27%, 17% of parcels in the project area observed these improvements respectively. These are followed by repairs of existing buildings (15%), sewage, drainage, toilet (12%), and facilities for water supply (12%). Less than 2% in the study area observed investment related to increase in the size of the parcel (Table 33).

Table 33: Types of land investment made in the past 12 months

| Item | Treatment | | Control | | Total | | Testing |
|---|------------|-------|--------------|-----|------------|-------|---------|
| | Mean | N | Mean | N | Mean | N | |
| % hh that made at least one type of investment | 27.6% | 1,034 | 24.3% | 656 | 26.2% | 1690 | |
| % parcels that benefited from an investment | 19.5% | 1,547 | 28.7% | 607 | 21.1% | 2,154 | ***T<C |
| For those that made investments, % parcels by type of investment made: | | | | | | | |
| increasing the parcel size | 1.7% | 341 | 1.0% | 173 | 1.6% | 514 | |
| constructions of new buildings/houses | 27.8% | 341 | 25.9% | 173 | 27.3% | 514 | |
| repairs, improvements, rehabilitation of buildings | 16.2% | 341 | 11.8% | 173 | 15.1% | 514 | |
| repairs, improvement, rehabilitations of roofs | 37.5% | 341 | 43.2% | 173 | 38.9% | 514 | |
| sewage, drainage, toilets | 12.0% | 341 | 13.7% | 173 | 12.4% | 514 | |
| facilities for water supply | 11.1% | 341 | 13.9% | 173 | 11.8% | 514 | |
| Electricity | 16.8% | 341 | 18.2% | 173 | 17.1% | 514 | |
| landline service | 0.0% | 341 | 0.0% | 173 | 0.0% | 514 | |
| Irrigation | 0.0% | 341 | 0.0% | 173 | 0.0% | 514 | |
| Average investment cost per parcel by type (Mt): | | | | | | | |
| increasing the parcel size | -- | 0 | --- | 0 | --- | 0 | |
| constructions of new buildings/houses (b) | 266,388.70 | 40 | 1,355,598.00 | 17 | 481,438.70 | 57 | **T<C |
| repairs, improvements and rehabilitation of buildings | 120,412.00 | 18 | 14,290.85 | 12 | 90,347.32 | 30 | |
| repairs, improvement and rehabilitations of roofs on the buildings | 7,641.28 | 71 | 4,186.38 | 37 | 6,836.99 | 108 | |
| sewage, drainage, toilets | 931.47 | 24 | 723.25 | 12 | 874.57 | 36 | |
| facilities for water supply | 33,378.47 | 7 | 209,064.10 | 2 | 76,014.05 | 9 | **T<C |
| Electricity | 10,384.64 | 8 | 2,574.74 | 8 | 7,548.93 | 16 | |
| landline service | --- | 0 | --- | 0 | --- | 0 | |
| Irrigation | --- | 0 | --- | 0 | --- | 0 | |
| Total Average investment cost per parcel (Mt) | 38,874.75 | 341 | 128,640.50 | 173 | 60,370.58 | 514 | *T<C |
| Total Average investment cost per parcel per m² (Mt)(c) | 131.25 | 341 | 731.17 | 171 | 273.31 | 512 | **T<C |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(b) one large investment on control of 7,200,000Mt

(c) 2 parcels without area size

In terms of the cost of investment, the most expensive investment is building new houses. For those that made this type of investment (57 parcels), the average cost of building a new house was 481,438.70 Mt (266,388.70 Mt in the treatment and 1,355,598.00 Mt in the control area). The average cost of repairing existing house (for 30 parcels that made this investment) was 90,347.32 Mt. Average investment in fixing roofs, which was one of the most common types of investment, is estimated to be 6,836.99 Mt for the 108 parcels that reported this investment category. Regardless of the seemingly big difference between the treatment and control group, the monetary value of investment is not significantly different between the two groups (Table 33).

There is a considerable variation in parcel investment across the two locations and between the treatment and control areas within a city (Annex Table A3.33 and A4.33). For example, 32% of households in Monapo vila made any investment in the past 12 months, only 25% in Nampula did the same. The type and cost of investment also vary across locations. While water supply is the most important investment in Nampula (14% of parcels), the most important investment in Monapo vila is sewage, drainage, toilets (18%). The average cost of investment is relatively higher in Nampula than in Monapo (310 MT vs. 103 MT per m²).

5.2.9. Perception of land law

Respondents were asked questions on perceived impact of DUAT on parcel value, market participation, conflicts, collateralization, and expropriations. Table 34 summarizes respondents' perceived impact of DUAT on land value. In spite of the fact that very few households have received DUAT in the past, predominate majority of households (94%) felt that DUAT would increase land value. Only 2.3% (or 2%) of respondents perceived DUAT to have no effect (or even negative effect) on land value. And the remaining 1.6% of respondents' answered "Do not know". Except for the "Do not know" category, the difference in perceived effect of DUAT on land value between the treatment and the control groups is not statistically significant.

The perceived impact of DUAT on land value is also highly consistent between Nampula city and Monapo vila, between male-headed households and female-headed households (see Annex Table A3.34), as well as between the treatment and control bairros within the two focused study areas (Table A4.34).

Table 34. Percentage households by their opinion on the effect of DUAT on the value of parcel

| Item | Treatment (T) | | Control (C) | | Total | | Testing (a) |
|---------------|------------------|------|----------------|-----|--------|------|-------------|
| | Mean | N | Mean | N | Mean | N | |
| Increase | 93.9% | 1034 | 94.5% | 656 | 94.1% | 1690 | |
| Decrease | 2.1% | 1034 | 1.9% | 656 | 2.0% | 1690 | |
| Do not affect | 2.3% | 1034 | 2.4% | 656 | 2.3% | 1690 | |
| Do not know | 1.7% | 1034 | 1.2% | 656 | 1.6% | 1690 | **T>C |
| Total | 100.0% | 1034 | 100.0% | 656 | 100.0% | 1690 | |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing (comparing (Treatment) and (Control): * indicates significant difference at 10% level, ** at 5%, and *** at 1%. If not noted, no significant was found differences

As expected, a larger proportion of households (57% overall) are willing to pay more for land with DUAT than parcel without DUAT (Top panel, Table 35). About 35% of the respondents across the board (36% in the treatment to 34% in the control group) are willing to pay less for parcels with DUAT than parcels without DUAT. Among the remaining 8% of respondents, 4% is willing to pay the same amount for land with or without DUAT, and the other 4% selected “Don’t know” as their answers. A formal test for mean difference between the treatment and control groups reveals that share of respondents who are willing to pay less is higher in the treatment than in the control area. However, the magnitude of difference is quite small (36% vs. 34%) (Table 35).

Disaggregating the sample by city or by gender of household heads suggests the overall story does not vary much over the subsamples. For example, 58% of respondents in Nampula city and 52% in Monapo Vila are willing to pay more for parcels with DUAT than parcels without DUAT. Likewise, 57% of male-headed and a similar percentage of female headed households are willing to do the same (See Annex Table A3.35). In terms of comparison between treatment and control areas within a city, the percentage of respondents who are willing to pay more is significantly higher in treatment bairros than in control bairros (42% vs. 32%) (Annex Table A4.35).

Table 35. Percentage of households by their willingness to pay, willingness to sell and willingness to rent out in the case of DUAT

| Rent out in the case of DUAT | | | | | | | |
|--|-----------|------|---------|-----|--------|------|---------------|
| | Treatment | | Control | | Total | | Testing (a) |
| | (T) | | (C) | | | | |
| Item | Mean | N | Mean | N | Mean | N | |
| % hh willing to pay more, less or same for purchasing parcel with DUAT than that without DUAT: | | | | | | | |
| More | 55.7% | 1034 | 59.0% | 656 | 56.9% | 1690 | ***T>C |
| Less | 36.1% | 1034 | 33.7% | 656 | 35.3% | 1690 | |
| Same | 3.6% | 1034 | 4.5% | 656 | 3.9% | 1690 | |
| DNK | 4.6% | 1034 | 2.8% | 656 | 3.9% | 1690 | |
| Total | 100.0% | 1034 | 100.0% | 656 | 100.0% | 1690 | |
| % hh more willing to sell property in the case of DUAT: | | | | | | | |
| Yes | 36.0% | 1034 | 31.4% | 656 | 34.3% | 1690 | *T<C **T>C |
| No | 54.2% | 1034 | 61.4% | 656 | 56.8% | 1690 | |
| DNK | 9.8% | 1034 | 7.2% | 656 | 8.9% | 1690 | |
| Total | 100.0% | 1034 | 100.0% | 656 | 100.0% | 1690 | |
| % hh more willing to rent out property in the case of DUAT: | | | | | | | |
| Yes | 52.4% | 1034 | 45.4% | 656 | 49.9% | 1690 | *T>C |
| No | 39.3% | 1034 | 46.3% | 656 | 41.8% | 1690 | **T<C |
| DNK | 8.3% | 1034 | 8.3% | 656 | 8.3% | 1690 | |
| Total | 100.0% | 1034 | 100.0% | 656 | 100.0% | 1690 | |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing (comparing (Treatment) and (Control): * indicates significant difference at 10% level, ** at 5%, and *** at 1%. If not noted, no significant was found differences

It is also interesting to note that households are less likely to sell their parcels with DUAT than those without DUAT. Fifty seven percent of households (54% in the treatment area and 47% in the control area) are less willing to sell property with DUAT, which is compared to 34% households (36% in the treatment and 31% in the control area) who are more willing to do so. The remaining 9% of households answered “Don’t know” (Table 35). Again, the perception is consistent between the two cities and between male-headed and female-headed households (see Annex Table A3.35).

Unlike the case of land sale, more households would be willing to rent out property if they would have DUAT. For example, 50% of households in the entire sample would be more willing to rent out parcels with DUAT compared to parcels without DUAT (Table 35). On the other hand, 42% of households are less likely to rent out parcels with DUAT than those without DUAT. A mean difference test indicates significant difference between treatment and control areas. The share of households who are willing (or not willing) to rent out land with DUAT is significantly higher (lower) in the treatment group than in the control group. Again, the perception is similar no matter whether a household is located in Nampula city or in Monapo vila or no matter whether a household is headed by a male member or by a female member (Annex Table A3.35). In terms of comparison between the treatment and control bairros within a city, the percentage of households willing to rent out property in case of DUAT is significantly higher in treatment areas of Nampula than in control areas (Annex Table A4.35).

Respondents were also asked to provide their perception of the effects of DUAT on land conflicts and expropriation. The descriptive findings are summarized in Table 36. Except for a few minor categories, the mean difference is not significant between the treatment and control groups (Table 36 and Table A4.36), so our discussion mainly focuses on the overall sample. In general, households felt that demarcation/DUAT would lead to fewer land disputes. Overall, 39% of households (or 20% of households) perceived DUAT to make disputes ‘more unlikely’ (or somewhat unlikely), compared to 21% (or 16%) of households who perceived DUAT to make disputes more likely (or somewhat more likely).

The perceived impact of demarcation/DUAT on conflict resolution is even more consistent. More than half of the households (55% in the treatment area and 52% in the control area) felt that demarcation/DUAT would make land disputes more likely to be resolved. This is further complemented by another quarter of the households who felt that demarcation/DUAT would make land dispute somewhat likely to be resolved (25% in both the treatment and control areas). On the other hand, 16% of households felt that demarcation/DUAT would make disputes less likely or somewhat less likely to be resolved. The findings are also highly consistent across cities and head’s gender (See Annex Table A3.36).

The perception on DUAT’s impact on expropriation of land is much more consistent than in the case of land disputes. Overall 94% of households (94% in the treatment area and 93% in the control area) felt that demarcation/DUAT would reduce the risk of land expropriation. This is consistent with the fact that 93% of households in both the treatment and control areas felt that DUAT would make the expropriation process more transparent. The perception on the incident of expropriation as well as the transparency of the expropriation process is also highly consistent across the two urban areas and the gender of the head of the household (Annex Table A3.36).

Table 36. Households' opinion about the effect of DUAT on conflicts and expropriation

| Table 36: Households' opinion about the effect of DUAT on conflicts and expropriation | | | | | | | Testing (a) |
|---|------------------|------|----------------|-----|--------|------|----------------|
| Item | Treatment (T) | | Control (C) | | Total | | |
| | Mean | N | Mean | N | Mean | N | |
| % hh believing that demarcation/DUAT will make disputes more or less likely to occur | | | | | | | |
| More likely | 22.5% | 1034 | 18.1% | 656 | 20.9% | 1690 | |
| Somewhat likely | 15.4% | 1034 | 16.6% | 656 | 15.9% | 1690 | |
| Somewhat unlikely | 20.2% | 1034 | 18.4% | 656 | 19.6% | 1690 | |
| More unlikely | 37.1% | 1034 | 41.8% | 656 | 38.8% | 1690 | |
| DNK | 4.8% | 1034 | 5.0% | 656 | 4.8% | 1690 | |
| Total | 100.0% | 1034 | 99.9% | 656 | 99.9% | 1690 | |
| % hh believing that demarcation/DUAT will make disputes more or less likely to be resolved | | | | | | | |
| More likely | 55.1% | 1034 | 52.4% | 656 | 54.1% | 1690 | |
| Somewhat likely | 25.1% | 1034 | 25.3% | 656 | 25.2% | 1690 | |
| Somewhat unlikely | 7.8% | 1034 | 7.9% | 656 | 7.8% | 1690 | |
| More unlikely | 8.1% | 1034 | 8.1% | 656 | 8.1% | 1690 | |
| DNK | 3.9% | 1034 | 6.3% | 656 | 4.8% | 1690 | |
| Total | 100.0% | 1034 | 100.0% | 656 | 100.0% | 1690 | |
| HHS' opinion about DUAT reducing the risk of expropriation of land: % hhs | | | | | | | |
| Yes | 93.7% | 1034 | 93.4% | 656 | 93.6% | 1690 | |
| No | 1.8% | 1034 | 2.1% | 656 | 1.9% | 1690 | |
| DNK | 4.5% | 1034 | 4.5% | 656 | 4.5% | 1690 | |
| Total | 100.0% | 1034 | 100.0% | 656 | 100.0% | 1690 | |
| HHS' opinion about DUAT making the expropriation of land more transparent: % hhs | | | | | | | |
| Yes | 92.2% | 1034 | 93.9% | 656 | 92.8% | 1690 | |
| No | 3.3% | 1034 | 1.8% | 656 | 2.8% | 1690 | |
| DNK | 4.4% | 1034 | 4.3% | 656 | 4.4% | 1690 | |
| Total | 100.0% | 1034 | 100.0% | 656 | 100.0% | 1690 | |
| Source: MCA/MINAG's Urban Land Survey, 2010 | | | | | | | |
| Weighted to reflect population | | | | | | | |
| (a) Significance testing (comparing (Treatment) and (Control): * indicates significant difference at 10% level, ** at 5%, and *** at 1%. If not noted, no significant was found differences | | | | | | | |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing (comparing (Treatment) and (Control): * indicates significant difference at 10% level, ** at 5%, and *** at 1%. If not noted, no significant was found differences

The data also reveal strong positive impact of DUAT on land investment (Table 37). A majority of the households (65% overall, 64% in treatment area and 66% in the control area) felt that demarcation/DUAT would make land improvement/investment more likely. And another 21% (22% in treatment area and 20% in the control area) felt that DUAT would make land investment somewhat likely. Only 2.4% (or 4%) of households felt that DUAT would make land investment less (or somewhat less) likely. In terms of differences between treatment and control bairros within the two cities, the difference in opinion is statistically significant only in Nampula (Annex A4.37).

Compared to the case of land investment, the responses on impact of DUAT on households' ability to obtain collateralized credit are much more diverse. Less than half of the households felt that DUAT would be more likely or somewhat more likely to help obtain credit (overall, 28% "more likely" and 19% "somewhat more likely"). In the meantime, 19% (or 17%) of households felt that DUAT would be somewhat unlikely (or more unlikely) to help obtain credits. And 16%

of households could not know how to answer the question. Testing for mean difference between the treatment and the control group shows weakly significant (10%) and economically small difference in two of the categories (“somewhat unlikely” and “more unlikely”). However, there seems to be a considerable regional variation (see Annex Table A3.37). For example, while 39.4% of households in Nampula city perceived that DUAT is more likely to help use land as collateral, only 29% of households in Monapo vila perceived so.

In terms of the main purposes of the potential loan to be obtained by using land as collateral, a majority of households would use their loans to support production related activities. Overall, 27% of households (34% in both the treatment and control area) and 54% of households (50% in the treatment and 46% in the control area) indicated using the credit to support agriculture and business related activities, respectively. The remaining 19% of households would use the credit to improve buildings Table 37).

Table 37. Households' opinion about the effect of DUAT on investment and collateralization

| Item | Treatment | | Control | | Total | | Testing (a) |
|--|-----------|------|---------|-----|--------|------|----------------|
| | (T) | | (C) | | | | |
| | Mean | N | Mean | N | Mean | N | |
| hhs' opinion about making improvement or investments on their properties in the case of DUAT: % hhs | | | | | | | |
| More likely | 64.4% | 1034 | 66.6% | 656 | 65.2% | 1690 | *T<C |
| Somewhat likely | 21.8% | 1034 | 20.2% | 656 | 21.2% | 1690 | **T>C |
| Somewhat unlikely | 4.6% | 1034 | 3.9% | 656 | 4.3% | 1690 | |
| More unlikely | 2.6% | 1034 | 1.9% | 656 | 2.4% | 1690 | |
| DNK | 6.7% | 1034 | 7.4% | 656 | 6.9% | 1690 | |
| Total | 100.0% | 1034 | 100.0% | 656 | 100.0% | 1690 | |
| hhs' opinion about using their parcels as collateral to obtain credit in the case of DUAT: % hhs | | | | | | | |
| More likely | 30.8% | 1034 | 26.0% | 656 | 28.4% | 1690 | |
| Somewhat likely | 17.5% | 1034 | 21.9% | 656 | 19.0% | 1690 | |
| Somewhat unlikely | 17.9% | 1034 | 20.9% | 656 | 19.0% | 1690 | *T<C |
| More unlikely | 17.8% | 1034 | 15.0% | 656 | 16.8% | 1690 | *T>C |
| DNK | 16.0% | 1034 | 16.3% | 656 | 16.7% | 1690 | |
| Total | 100.0% | 1034 | 100.0% | 656 | 100.0% | 1690 | |
| % hh by purposes to which they would use the credit for if the hh is able to use land as collateral | | | | | | | |
| Agriculture | 34.0% | 1034 | 33.5% | 656 | 26.9% | 1690 | |
| Make improvements/expand property | 16.0% | 1034 | 20.1% | 656 | 19.0% | 1690 | |
| Business | 50.0% | 1034 | 46.3% | 656 | 54.1% | 1690 | |
| Total | 100.0% | 1034 | 100.0% | 656 | 100.0% | 1690 | |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing (comparing (Treatment) and (Control): * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

5.2.10. Knowledge about land law

Respondents were asked questions on their knowledge about the land law and their perception on the effectiveness of the land law. Table 38 summarizes respondents' knowledge about women's land rights according to the land law.

Table 38. Knowledge about women's rights under the land law of 1997

| Table 5b: Knowledge about women's rights under the land law of 1997 | | | | | | |
|---|-----------|------|---------|-----|-------|---------|
| | Treatment | | Control | | Total | Testing |
| | (T) | | (C) | | | (a) |
| Item | Mean | N | Mean | N | Mean | N |
| % hhs reporting that women have the right to inherit land on equal basis as their brothers | | | | | | |
| Yes | 80.1% | 1034 | 76.4% | 656 | 78.8% | 1690 |
| No | 12.8% | 1034 | 16.1% | 656 | 13.4% | 1690 |
| Don't know | 7.5% | 1034 | 7.8% | 656 | 7.6% | 1690 |
| Total | 100% | 1034 | 100% | 656 | 100% | 1690 |
| % hhs reporting that women have the right to maintain a piece of their ex-husband's land in case of divorce | | | | | | |
| Yes | 81.4% | 1034 | 79.1% | 656 | 80.6% | 1690 |
| No | 13.9% | 1034 | 17.1% | 656 | 15.0% | 1690 |
| Don't know | 4.7% | 1034 | 3.8% | 656 | 4.4% | 1690 |
| Total | 100% | 1034 | 100% | 656 | 100% | 1690 |
| % hhs reporting that women have the right to apply for a formal land title | | | | | | |
| Yes | 89.5% | 1034 | 87.4% | 656 | 88.7% | 1690 |
| No | 7.3% | 1034 | 8.1% | 656 | 7.6% | 1690 |
| Don't know | 3.2% | 1034 | 4.5% | 656 | 3.7% | 1690 |
| Total | 100% | 1034 | 100% | 656 | 100% | 1690 |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing (comparing (Treatment) and (Control): * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

A majority of households (79% overall, 80% in the treatment group and 76% in the control group) perceived that women have rights to inherit land on equal basis as their brothers. And 81% (81% in the treatment and 79% in the control area) also perceived that women have the right to maintain a piece of their ex-husband's land in case of divorce. The number of respondents who perceived women to have the right to apply for formal land titles is even higher (89% overall, 90% in the treatment and 87% in the control area). A formal test for the mean difference between treatment and control area suggests no significant difference between the two groups in all the categories (Table 38). The findings about women's rights are also consistent no matter whether a household is located in Nampula city or Monapo vila or whether a household is headed by a male or a female member (see Annex Table A3.38). In terms of comparison between treatment and control bairros within a city, there is no statistically significant difference in various categories of knowledge about women's rights in Monapo vila. But in Nampula, a significantly more respondents in control bairros reported that women did not have right to inherit land on equal basis as their brothers (Annex Table A4.38). But other than this one

category, the responses were consistent between treatment and control bairros in Nampula as well.

Based on the survey responses, it appears that the land law was poorly implemented. Only 13% of households (12% in the treatment and 14% in the control area) reported to be informed about the 1997 land law (top row of Table 39). Of those who were informed about the law, only 12% know fair amount about the law, and 76% know very little about the law and 8% knew nothing about the content of the law. The knowledge about the law between the treatment and control group is not statistically different within the two cities (Annex Table A4.39) and across the two cities (Table 39).

Table 39. Perceptions about the land law of 1997

| Item | Treatment (T) | | Control(C) | | Total | | Testing (a) |
|---|---------------|------|-------------|-----|--------|------|-------------|
| | Mean | N | Mean | N | Mean | N | |
| % hh informed about the 1997's land law | 12.2% | 1034 | 14.3% | 656 | 13.0% | 1690 | |
| If informed, how much the hh knows about the land law | | | | | | | |
| None | 5.5% | 137 | 12.3% | 102 | 8.2% | 239 | |
| A little | 76.6% | 137 | 74.8% | 102 | 75.9% | 239 | |
| A fair amount | 12.8% | 137 | 9.7% | 102 | 11.6% | 239 | |
| A lot | 5.1% | 137 | 3.2% | 102 | 4.4% | 239 | |
| Total | 100.0% | 137 | 100.0% | 102 | 100.0% | 239 | |
| If informed, % hhs by the means that they received information of land law | | | | | | | |
| Local leaders | 27.7% | 137 | 12.6% | 102 | 21.8% | 239 | |
| Dissemination by authorities | 35.2% | 137 | 35.5% | 102 | 35.3% | 239 | |
| Others | 37.1% | 137 | 51.9% | 102 | 42.9% | 239 | |
| Total | 100.0% | 137 | 100.0% | 102 | 100.0% | 239 | |
| If informed, % hhs that received information about the land law of 1997 | 5.6% | 137 | 12.4% | 102 | 8.3% | 239 | ***T<C |
| If informed, % hhs that knows specific rights of the land law of 1997 | 60.1% | 137 | 42.7% | 102 | 53.3% | 239 | |
| The opinions of informed HH's about how the land law strengthens land tenure: % hhs | | | | | | | |
| Very useful | 73.5% | 137 | 66.7% | 102 | 70.8% | 239 | **T>C |
| Somewhat useful | 22.1% | 137 | 22.9% | 102 | 22.4% | 239 | **T<C |
| Useless | 0.1% | 137 | 0.9% | 102 | 0.4% | 239 | |
| Cannot say | 4.2% | 137 | 9.5% | 102 | 6.3% | 239 | |
| Total | 100.0% | 137 | 100.0% | 102 | 100.0% | 239 | |
| % of the informed hhs that think that in accordance with the land law of 1997 have right to sell or buy land | | | | | | | |
| Yes | 7.6% | 137 | 5.9% | 102 | 6.9% | 239 | |
| No | 51.3% | 137 | 52.7% | 102 | 51.9% | 239 | |
| DNK | 41.0% | 137 | 41.4% | 102 | 41.2% | 239 | |
| Total | 100.0% | 137 | 100.0% | 102 | 100.0% | 239 | |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing comparing (T) and (C): * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

In terms of means by which the respondents were informed about the law, 22% reported to receive the information from local leaders, 35% from government authorities, and 43% from other sources (Table 39). There is no statistical difference in the three sources between the treatment and control areas. On the other hand, there seems to be considerable variation across city and gender of the household head (Annex A3.39). While the percentage of households receiving information from local leaders, authorities, and others is 33%, 36% and 31%, respectively in Monapo, the corresponding figures are 20%, 35% and 45% in Nampula. Similarly, 30% of female headed households received information from local heads, but only 19% of male-headed households did so (Annex A3.39).

Of those who were informed about the land law, only 8% of them (with significant difference between the treatment and control, 6% versus 12%) received dissemination materials (Table 39). On the other hand, more than half of the households (53% overall ranging from 73% in the control area to 60% in the treatment area) who were informed know the specific rights stipulated in the land law of 1997. There is considerable variation in knowledge of the specifics of the law between male headed households and female-headed households (47% versus 73%, reported in Annex A3.39).

In terms of usefulness of the land law, 71% overall with significantly higher share of respondents in the treatment than in the control area - 74% vs. 67% (especially in Nampula city, as indicated in Annex Table A4.39) felt the law was very useful, and another 22% (22% in the control and 23% in the treatment) felt the law is somewhat useful. Less than 1% of households felt the law was useless. The rest of them could not answer (Table 39).

Finally, of those who are informed about the law, only 7% of the households (8% in the treatment area and 6% in the control area) thought that land purchase/sale is allowed by the 1997 Land Law. More than half of those who are informed about the law (52% overall, 51% in the treatment area and 53% in the control area) do not think 1997 Land Law allows land transactions through purchase/sale. And the remaining 41% did not know how to answer this question.

5.3. Household consumption, expenditure and prevalence of poverty: Baseline assessment

The ultimate goal of increasing land tenure security through the Land Project is to positively impact the welfare of the population as measured by food consumption and expenditure. Although these types of indicators take a long time to realize impact at the household or a community level and may be beyond the scope of this impact evaluation, we did collect quantitative data that provides a baseline assessment of the characteristics of the households in the study area in terms of their status with regards to food consumption, dietary diversity, and total expenditures. The estimates of per capita expenditures are also used to assess the poverty status of the study area as defined by the global measure of income poverty (i.e., people living on less than \$1.25 per day) and also by the poverty line defined by the Government of Mozambique for urban areas in Nampula. The results of this baseline analysis are presented in this section.

5.3.1. Food consumption and household dietary diversity

Table 40 presents the status of households in the study area with regards to food consumption expenditures by different types of foods. The total average value of food consumption per household in the study area is estimated to be around 3,942 per month. In value terms, the consumption of basic food (cereals, roots and tubers) captures the highest share in the food expenditure basket (1,270.69 Mt/month) followed by meat and animal products (1,165.15 MT/month). These two food items (basic food and meats/animal products), together account for more than 60% of the value of monthly food consumption by the households. The share of other foods and legumes/vegetables in the monthly food expenditure ranks third and fourth among all the types of foods consumed. The value of consumption of fruits/nuts and restaurant foods/beverages is respectively, 189.03 MT and 43.30 MT per month, which are the two lowest value food consumption categories (Table 40). For all the other food items, the values of food consumption in the control sites are significantly higher compared to the treatment sites. However, the value of household food consumption in treatment and control areas within the two cities is more similar as very few categories of food have statistically different value in across treatment and control bairros within Nampula and Monapo (Annex Table A4.40).

Table 40. Value of household food consumption per month (Mt)

| Item | Treatment (T) | | Control (C) | | Total | | Testing (a) |
|---|------------------|------|----------------|-----|----------|-------|----------------|
| | Mean | N | Mean | N | Mean | N | |
| Basic food (cereals, roots and tubers) | 1,130.45 | 1034 | 1,362.75 | 656 | 1,270.69 | 1,690 | ***T<C |
| Legumes/vegetables | 488.70 | 1034 | 567.70 | 656 | 536.39 | 1,690 | ***T<C |
| Fruits and Nuts | 177.84 | 1034 | 196.37 | 656 | 189.03 | 1,690 | ***T<C |
| Meats and animal products (including fish) | 1,107.71 | 1034 | 1,202.87 | 656 | 1,165.15 | 1,690 | ***T<C |
| Other foods (sugar, condiments, beverages, vegetable oil) | 614.52 | 1034 | 817.83 | 656 | 737.26 | 1,690 | **T<C |
| Meals and beverages in restaurants | 62.19 | 1034 | 30.91 | 656 | 43.30 | 1,690 | |
| Value of total food consumption (Mt) | 3,581.41 | 1034 | 4,178.42 | 656 | 3,941.83 | 1,690 | ***T<C |
| Value of total food consumption (USD) | 130.19 | 1034 | 151.89 | 656 | 143.29 | 1,690 | ***T<C |
| Value of total food consumption per capita per day (Mt) | 25.75 | 1034 | 29.42 | 656 | 27.96 | 1,690 | ***T<C |
| Value of total food consumption per capita per day (USD) | 0.94 | 1034 | 1.07 | 656 | 1.02 | 1,690 | ***T<C |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing comparing (T) and (C): * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

The composition of different categories of food consumed by the households over the past seven days prior to the day of the survey interview is used to compose a dietary diversity score for the study area. The Household Dietary Diversity Score (HDDS) is considered to be highly correlated to the economic status of households and provides a proxy for the quality dimension of food security. The HDDS is comprised of the following twelve food groups: 1"Staple cereals" 2"tubers" 3"meat" 4"eggs" 5"fish and other sea food" 6"legumes" 7"vegetables" 8"fruit" 9"milk and milk products" 10"oil and oil seeds" 11"sugar" 12" Miscellaneous" (Swindale and Bilinsky, 2006). The highest possible score a household can get for dietary diversity is 12 (which is considered the most diverse diet) and the lowest 1 (least diverse diet).

The survey results presented in Table 41 show a medium to high level of average dietary diversity among households in the study area. In both the treatment and control groups, the households consume, on average, foods from at least 9 different food groups. Comparison among sites, indicate that contrary to the significantly higher value of food consumption in the control sites, the treatment sites have greater and statistically significant dietary diversity score than the control site (Table 41). Much of this difference is due to the statistically higher level of HDDS in Monapo in treatment bairros compared with control bairros (Annex Table A4.41).

Not surprisingly, the most commonly consumed food groups which are part of the diets of more than 90% of the study area population are cereals, vegetables, oil and oilseeds, fish, legumes and fruits (in descending order of importance). Meat, eggs and milk are the least consumed food categories, each being part of the diets of 30%, 21% and 17% of the population, respectively, in the study area. Household participation in the consumption of protein and micronutrient rich foods such as tubers, meat, egg, fish, legumes, oil and sugar is significantly higher among the treatment group than among the control group (Table 41).

Table 41. Household participation in each food group and the overall HDDS by the treatment and control groups

| Item | Treatment (T) | | Control (C) | | Total | | Testing (a) |
|---------------------------------------|------------------|-------|----------------|-----|-------|-------|-------------|
| | Mean | N | Mean | N | Mean | N | |
| Staple cereals | 94.4% | 1,034 | 93.3% | 656 | 94.0% | 1,690 | |
| Tubers | 84.8% | 1,034 | 81.6% | 656 | 83.5% | 1,690 | **T<C |
| Meat | 32.1% | 1,034 | 26.8% | 656 | 30.0% | 1,690 | *T>C |
| Eggs | 22.3% | 1,034 | 17.7% | 656 | 20.5% | 1,690 | **T>C |
| Fish and shellfish or other seed food | 95.0% | 1,034 | 92.0% | 656 | 93.8% | 1,690 | **T>C |
| Legumes | 89.1% | 1,034 | 86.5% | 656 | 88.1% | 1,690 | |
| Vegetables | 94.4% | 1,034 | 95.5% | 656 | 94.8% | 1,690 | |
| Fruit | 88.1% | 1,034 | 87.2% | 656 | 87.8% | 1,690 | |
| Milk and milk products | 19.0% | 1,034 | 13.0% | 656 | 16.6% | 1,690 | |
| Oil and oil seeds | 94.4% | 1,034 | 93.5% | 656 | 94.0% | 1,690 | |
| Sugar | 89.5% | 1,034 | 85.1% | 656 | 87.8% | 1,690 | ***T>C |
| Miscellaneous | 98.4% | 1,034 | 98.9% | 656 | 98.6% | 1,690 | |
| Household Dietary Diversity (HDDS) | 9.01 | 1,034 | 8.71 | 656 | 8.90 | 1,690 | ***T>C |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing (comparing (Treatment) and (Control): * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

5.3.2 Household expenditures on non-food items

Table 42 summarizes the average monthly non-food expenditures in the study area. Results indicate that on average, the households in the study area spend about 2,210.04Mt per month with almost 24% spent on clothing, 23% spent on transportation and 13% on fuel. Expenses that account for less than 10% of the non-food expenditures are health (8%), rent, utilities and household security (7%), miscellaneous assets and services (7%), communication (7%) and the household durable goods, small electrics and domestic services (6%). Statistical analysis shows that households in control zones have significantly higher expenses on rent; utilities and household security. and miscellaneous assets and services compared to those in treatment zones. This difference is more pronounced in Monapo vila than in Nampula city (see Annex Table

A4.42) The transportation expenses paid by the households in the treatment sites are significantly greater than those paid by the households in the control sites in both the cities.

Adding the food and non-food expenditures together gives the total monthly expenditure per household of 6,150 meticas (Table 42). Converted at the market exchange rate, this is equivalent to US\$ 223 of average total expenditure per household in the overall study area.

Table 42. Average monthly non-food expenditures per household (Mt) by municipality

| Item | Treatment (T) | | Control (C) | | Total | | Testing (a) |
|--|------------------|-------|----------------|-----|----------|-------|----------------|
| | Mean | N | Mean | N | Mean | N | |
| Clothing (Mt/month) | 485.24 | 1,034 | 566.25 | 656 | 519.26 | 1,690 | |
| Rent, utilities and household security (Mt/month) | 102.47 | 1,034 | 215.90 | 656 | 150.11 | 1,690 | ***T<C |
| Household appliances, accessories (Mt/month) | 32.98 | 1,034 | 49.43 | 656 | 39.89 | 1,690 | |
| Household durable goods, electricity, domestic services (Mt/month) | 120.29 | 1,034 | 142.26 | 656 | 129.51 | 1,690 | |
| Health (Mt/month) | 156.79 | 1,034 | 197.55 | 656 | 173.91 | 1,690 | |
| Transportation (Mt/month) | 602.55 | 1,033 | 361.10 | 655 | 501.19 | 1,688 | ***T>C |
| Communication (Mt/month) | 154.75 | 1,034 | 164.30 | 656 | 158.76 | 1,690 | |
| Culture and recreation (Mt/month) | 39.25 | 1,034 | 35.59 | 656 | 37.71 | 1,690 | |
| Fuel (Mt/month) | 296.61 | 1,033 | 249.10 | 655 | 276.67 | 1,688 | **T>C |
| Education (Mt/month) | 76.44 | 1,034 | 72.71 | 656 | 74.87 | 1,690 | |
| Miscellaneous assets and services (Mt/month) | 122.46 | 1,034 | 187.57 | 656 | 149.80 | 1,690 | ***T<C |
| Average total monthly household expenditures on non-food items (Mt) | 2,188.47 | 1,034 | 2,240.47 | 656 | 2,210.31 | 1,690 | |
| Average total monthly household expenditures on food (Mt) | 4,058.97 | 1,034 | 3,775.14 | 656 | 3,939.78 | 1,690 | |
| Total household monthly expenditures (Mt) | 6,247.44 | 1,034 | 6,015.61 | 656 | 6,150.09 | 1,690 | |
| Total household monthly expenditures (US) | 227.10 | 1,034 | 218.67 | 656 | 223.56 | 1,690 | |
| Source: MCA/MINAG's Urban Land Survey, 2010 | | | | | | | |
| Weighted to reflect population | | | | | | | |
| (a) Significance testing (comparing (Treatment) and (Control): * indicates significant difference at 10% level, ** at 5%, and *** at 1%. | | | | | | | |
| If not noted, no significant was found differences | | | | | | | |

5.3.3 Prevalence of poverty in the study area

Table 43 shows the baseline assessment of the prevalence of poverty in the study area as measured by the percent of individuals living on less than \$1.25 per day (the global poverty line) and 14.77 Mt/day (the national poverty line), where 'living' is measured based on expenditure. The expenditure approach of estimating the prevalence of poverty is based on total food and non-food expenditures reported in Table 43. For the global poverty measure, the total expenditures are first converted into USD by using the 2010 PPP exchange rate (14.77 Mt/dollar) and expressed as "per day" measures. These estimates are then divided by total household size. The household level per capita expenditure is then applied to all the members of the household to calculate the percent of people living on less than \$1.25 per day.

As indicated in Table 43, 30 to 35% of people in the study area live below poverty line, which is about 20-25 percentage points less than the national estimate of poverty headcount in Mozambique. For example, the recent report on poverty assessment in Mozambique, indicates a national poverty headcount of 54.7% in 2008/09 (Ministry of Planning and Development, 2010). This source also indicates that the headcount poverty in urban areas of Mozambique in 2008 was 50%. The poverty headcount based on the global measure of \$1.25/day for the whole country was estimated to be 60% in 2008. Since the

expenditure estimates, especially the value of food consumption, are based on short recall data (i.e., 7 days for food consumption and one month for most non-food expenditures), it is possible that the estimated total expenditures may be biased upward as they are not adjusted for seasonality and possible lean periods encountered over the year. Thus, we caution against using these estimates for purposes beyond this study. These are most useful as a baseline comparison of treatment versus control sites.

Statistical analysis indicates that the treatment sites have significantly higher proportion of people under poverty compared to the control sites, spending on average \$1.47 per day per person. Comparison across regions, show that Nampula is better-off than Monapo vila (Annex Table A3.43); but the disparity the treatment and control bairros is greater within Monapo than within Nampula (Annex Table A4.43). Although, out of scope of this report, analysis of severity and inequality of poverty in the area of study can help to understand the structure of poverty as a guide for development programs in the region.

Table 43. Percent of individuals living on less than \$1.25 per day (based on PPP exchange rate) and less than 16.7 Mt per day (based on national poverty line)

| Item | Treatment (T) | | Control (C) | | Total | | Testing (a) |
|--|------------------|--------|----------------|---------|--------------|---------|-------------|
| | Mean | N | Mean | N | Mean | N | |
| Average per capita expenditures per day (USD PPP) | 1.56 | 66,798 | 1.73 | 103,629 | 1.66 | 170,427 | ***T<C |
| % individuals in poverty based on global measure (i.e., <\$1.25/day) | 37.0% | 66,798 | 29.2% | 103,629 | 32.2% | 170,427 | ***T>C |
| Average per capita expenditures per day (Meticas) | 42.95 | 66,798 | 47.56 | 103,629 | 45.73 | 170,427 | ***T<C |
| % individuals in poverty based on national poverty line (i.e., <16.7 Mt/day) (b) | 44.5% | 66,798 | 39.1% | 103,629 | 41.2% | 170,427 | **T>C |
| <i>Actual number of people per group</i> | <i>5,665</i> | | <i>3,683</i> | | <i>9,348</i> | | |

Source: MCA/MINAG's Urban Land Survey, 2010
Weighted to reflect population
(a) Significance testing comparing (T) and (C): * indicates significant difference at 10% level, ** at 5%, and *** at 1%.
(b) Using the urban Nampula's poverty line (16.7 Mt/day/person) from Ministry of Planning and Development (2010)

6. Discussion and Conclusions

This baseline survey provides extensive information on household characteristics, land ownership, land acquisition, land use, parcel characteristics, land investment, land conflict and perceived risks, land market (sales and rental), and perceptions and knowledge about the land law. It provides insights into the household economies and land market dynamics of two urban areas – Nampula city and Monapo vila, which are two of the eight municipal areas being targeted by the ‘*Site Specific Access to Land*’ project activities of MCA-Mozambique. The purpose of this report has been to present the baseline assessment of the study area, while also describing the context and design of the impact study. This final section begins with a summary of the results in terms of: a) baseline assessment of the indicators identified in Figure 2; and b) insights they reveal about the land economy in general and the targeted population more specifically. The report closes by identifying key conclusions and methodological implications that have emerged from this baseline assessment.

6.1 Baseline assessment of the outcome and impact indicators of the Land Project in urban areas

The logic framework of the Land Project depicted in Figure 2 identified eight outcome and impact indicators as the focus of this evaluation. Table 44 provides a summary assessment of the baseline scenario of these indicators that were presented in various tables throughout the report. The values are for the entire sample of households in the two urban areas—Nampula city and Monapo Vila. They represent the baseline value for the planned impact evaluation so as to attribute the change in these indicators to the Land Project (to be observed after the intervention). As noted throughout the report, some of these indicator values are based on very few observations and were either not calculated (e.g., the time and cost of obtaining DUAT) or estimated but with a cautionary note on the low statistical power on the robustness of results.

Table 44: Baseline assessment of key outcome and impact indicators

| Indicator | Baseline value (N in parenthesis) | Expected effect of the land project |
|--|--------------------------------------|--|
| a. Time to obtain title\ | -- | Negative (i.e., time is expected to reduce) |
| b. Cost of obtaining title\ | -- | Negative (i.e., cost is expected to reduce) |
| c. Registered property rights (DUATs) (% of parcels and number of parcels) | 0.4% (1,987) 12 | Positive (i.e., number of registered parcels is expected to go up) |
| d. Incidents of conflicts | | |
| i. % of parcels experiencing conflicts in the past \ | 3% (67) | Negative (i.e., number of conflicts is expected to reduce) |
| ii. % parcels concerned of having conflict in future | 18% (1,987) | |
| e. Transactions reflecting active land market | | |
| i. % parcels rented out | 3.7% (2,154) | Positive (i.e., rental activity is expected to go up) |
| ii. % parcels rented in or borrowed | 7.8% (2,154) | |
| f. Value of land | | |
| i. Residential plots: Average total value of rent per parcel (Mt/500 m ²) \ | 2,985 (82) | Positive (i.e., value of land as measured by rental rate is expected to go up) |
| ii. Agricultural plots: Average total value of rent per parcel (Mt/500 m ²) \ | 60 (36) | |
| iii. Average total value of rent per parcel (Mt/500 m ²) \ | 1,995 (118) | |
| g. Investments on land parcels | | |
| i. % parcels that benefited from an investment | 21% (2,154) | Positive (i.e., investments on land improvement is expected to go up) |
| i. Total average investment cost per parcel per 500 m ² (Mt) | 136,655 (512) | |
| h. Access to formal credit | | |
| i. % households that applied for credit | 7% (1,690) | Positive (i.e., number of people accessing credit using land as a collateral is expected to go up) |
| ii. % of households that applied for credit that had to present collateral \ | 16% (131) | |
| ii. % of households that applied for credit and were denied because of insufficient collateral \ | 27% (36) | |

\a Number of registered parcels (12) in the sample is too low to estimate this indicator

\b Caution: Numbers of observations are too few to derive robust estimates of these indicators

6.2 Key results and conclusions on comparison between treatment and control areas

The results of the baseline survey analysis (pooled results as well as disaggregated results by city as presented in Annex 4) indicates that in many ways, the treatment and control areas share similar socioeconomic characteristics (e.g., key demographics features, access to credit), but in other ways they are significantly different (assets, food consumption, expenditures). In terms of assets and food consumption diversity index the respondents in the treatment group are relatively better off. But in terms of expenditures and headcount poverty, the data show the advantageous position held by respondents in the control area.

Almost two-thirds of the land parcels located in the study zones has no documents that give the owners property rights to that parcel. For those that have some document, the most common was an affidavit of purchase/sales. Only 12 parcels in the entire sample had obtained a DUAT by the time of the baseline survey and about 50 parcel holders had initiated the process of obtaining a DUAT. However, 87% of parcel owners were interested in obtaining a DUAT and were willing to pay on average about 320 Mt for that transaction.

The hypothetical average sale price of land parcel in the study area was reported to be about 300 Mt/m² for residential plots and 48 Mt/m² for agricultural plots. Similarly, the hypothetical average monthly rental price for a land parcel in the study zone was reported to be about 25 Mt/m² or about 5,200 Mt for the whole parcel.

The study area is characterized by a thin rental market. Of the total number of parcels surveyed in the study area, 12% were either rented-in (8%) or rented out (4%). The average monthly rental rate across all rented parcels in the study area was reported to be 6 Mt/m² (or 407 Mt for the whole parcel) for the residential plots and 0.12 Mt/m² (or 4,687 Mt for the whole parcel) for agriculture plots.

In general, the knowledge about the land law was found to be poor in the study area. Only 13% of households reported to be informed about the 1997 land law. Of those who were informed about the law, only 12% know fair amount about the law, and 76% know very little and 8% knew nothing about the content of the law.

As against the demographic characteristics of the households, the treatment and control areas in the Nampula and Monapo vila are very dissimilar in terms of parcel characteristics, behavioral variables related to land (e.g., investment, rental, sales), perceptions and opinion about land conflict and risks of expropriation, and knowledge of land law. On several of these key variables, the parcels and parcel holders differ significantly. The non-experimental nature of the research design has thus resulted in underlying incongruence between the two groups that lead to the observed differences.

6.3 Methodological implications

The research plan for the overall impact assessment includes a quasi-experimental design which relies on two rounds of survey data from both the treatment and control areas within the

Nampula city and Monapo vila: 1) baseline data before the intervention (2010-11) and 2) data from a follow-up survey planned in 2013. The type of analysis planned for impact evaluation is to calculate the changes that occur in the outcome variables over the two to three year period and to compare what happens (on average) to surveyed households in treatment areas with what happens (on average) to households in the non-treated areas. Given the similar locational distribution of the two samples, we would expect any external factors which occur during the two-three year period to affect both populations equally. If, on a given outcome/impact variable, the change that occurs in the treatment area is more favorable than the change that occurs to non-treatment area, then that would be evidence in favor of the impact hypothesis.

However, the analysis of the longitudinal data also needs to include statistical controls for multiple effects that could be due to other independent variables. For example, we know from the baseline results that the treatment and control samples differ in their sources and level of income. We also know that higher and more diverse initial income levels could contribute to changes in other impact variables, such as food consumption and expenditures. Through the use of multivariate techniques, we can control for the effects of higher average income levels and attempt to better isolate the actual relationship between tenure security and, as in the example, expenditures and food consumption.

The combination of the longitudinal data and the multivariate analysis will allow a much more accurate and precise impact assessment than is possible through comparing individual means in the baseline data. Thus, a general implication of the baseline results for the larger impact evaluation is the critical need for good-quality second-round survey data and the importance of analyzing the resulting longitudinal data with multivariate statistical techniques. The quality of the baseline survey data was in general good (with some exceptions noted below). As long as the second-round data collection is based on the same questionnaire and meets the same quality, there should be no major problems with creating the longitudinal data set.

A more specific recommendation for the second round of the survey is to carefully record the information on the size of the parcels, time and mode of acquisition of land, and values associated with rent, sales, purchase, and investments. For the baseline survey, these data were collected, but some ambiguities and missing data have emerged. Since the research plan for the second round survey calls for interviewing the same respondents that are included in the baseline, there will be an opportunity during the second round to verify, correct, and properly document these 'missing' data. This is necessary because some of these data will provide critical variables in the statistical analysis.

In conclusion, the baseline survey provides extensive information about the land economy in the two urban hotspot areas in Nampula province. In the interest of brevity, this report has presented results by treatment and control areas pooled across the two cities. The reader is invited to turn to the extensive tables in the appendix for information disaggregated by the two urban areas and the gender of the head of the household. At this time, the best use of the data is to create a description of the treatment and comparison groups. Following the second round of the survey, it should be possible to draw substantiated conclusions about the impact of land regularization intervention (that will result in more number of parcels with DUATs) on the parcel holders.

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Annex 1. Survey Instrument Used for the Listing Exercise

LISTING: Baseline survey for the Impact Assessment of the MCA's land interventions in Urban Areas EA |__|__|__|

| | | |
|------------------------------------|-------------------------------------|-------------------|
| DISTRICT | P.A. | VILLAGE |
| BAIRRO | E.A. (CÓDIGO DO INE) | CELULA/QUARTEIRÃO |
| GPS LATITUDE __ __ ° __ __ , | GPS LONGITUDE __ __ ° __ __ , | ENUENUMERATOR |

[illegible]

Annex 2. Field Report for the Baseline Survey for Impact Evaluation of MCA Land Interventions in Urban Areas¹⁰

This report summarizes the activities undertaken for implementing the urban land baseline survey of MCC/MCA's land tenure project, implemented by MINAG with technical support of MSU. The field work was implemented in two phases, namely: (a) training of enumerators and (b) data collection.

Training

A total of 30 candidates were recruited and trained in Nampula city for about three weeks, from September 4th to September 25th, 2010. The training took place at the Provincial Directorate of Agriculture and was facilitated by the MINAG staff and in-country MSU staff. The training had the objectives of improving the enumerator's interview skills, familiarize them with the questionnaire. During the training, a guest speaker was invited to present to the enumerators the relevant aspects of land law in Mozambique and their technical aspects. After 3 weeks of training, 25 successful enumerators were selected of which 20 were enumerators and 5 team supervisors.

After 3 weeks of training, the enumerators were capable of understanding the questionnaire, using correctly the GPS for geo-referencing the households but we felt that there was a need for more practice in the field before the actual data collection start. To address this concern, one week was dedicated to this activity in Monapo vila. This exercise was helpful, because the enumerators were able to review once again the questionnaire in order to master the questionnaire in terms of sequence and the flow of the questionnaire.

Data collection

The actual data collection started on October 12th, 2010, in Monapo vila. The voluntary participation of households constitutes a key element for success and high quality of data collected. To guarantee that the respondents are aware of the baseline survey, the local authorities were communicated by the municipality in order to mobilize and disseminate this information so that people know the objectives and procedures of the survey in order to avoid misinterpretations, misunderstandings or refusal to participate. In the case of Monapo, one staff member of the Distrital Directorate of Agriculture was assigned the task of facilitating the contact with local authorities as well as with the selected households.

In Monapo, the team started by listing the households in each selected bairro using the listing procedures described in the listing sheet (Annex 1). This task was done in the first week (October 14 -26, 2010) covering the 11 bairros and listing a total of 3.861 households. This activity helped the team to familiarize themselves with the area as well as to understand the boundaries and particularities of each bairro. The selected households were informed in advance about the date of their interviews. The actual interviews started on October 29th, 2010 in bairro Naherengue in Monapo vila.

¹⁰ The Field Report was prepared by MINAG, the survey implementing entity. The Portuguese version of the Field Report was submitted by MINAG to MCA in Maputo on 03/24/2012.

In Monapo vila, some bairros were listed entirely while others not. In those bairros listed entirely, 80 households were selected (Boa Viagem, Mecutane, Metoprime, Micolene, Moagem, Mulotine, Mucaca, Naheruque, Topelane) while in those that were not listed entirely, 16 households were selected in each enumeration area (Nachicuva and Nova Cuamba with a total of 5 enumeration areas). In Nampula, the survey was implemented in 5 bairros (Muatala, Namutequeliua, Muhaivire, Muhala, and Mutauanha), in each 15 households were randomly selected in each enumeration area.

One of the main problems in implementing the survey in Monapo was the high rate of absentees. To overcome this problem, if the head of the household was not present at the time of the first visit, the enumerators attempted to make an appointment and return again to interview the appropriate person, provided that this return visit is possible within the time that the survey team was in the area. In households that are male-headed with a spouse present, the spouse was the respondent for the sections that she was comfortable giving correct answers (e.g. food consumption module). The survey was designed to take between 1.5 and 2 hours.

While the field work was taking place, the data entry clerks were recruited and trained. The data entry of questionnaires partly was done in Nampula and the remaining part was done in Maputo. The subsequent data cleaning, information processing was done in Maputo and data analysis as well as the drafting of the report is being done in East Lansing. The data collected was entered in CsPro and analyzed in STATA.

Supervision and data quality control

To assess the quality of information gathered by enumerators, each team supervisor was responsible for reviewing each completed questionnaire and verifying some selected questions in the households already interviewed and compares them with the answers already contained in the questionnaires duly filled in the same families. If the answers were different, the enumerator was advised to complete or correct the inconsistencies, making a second visit to the household in question in the presence of the supervisor.

The survey covered 1,690 households in both Nampula and Monapo as reported in Table A2.1. Table A2.2, presents the classification of each bairro covered by the survey in terms of its (treatment or control). It is important to note that, Muhaivire was initially sampled as a control site, but subsequently, it has been changed to a treatment site. The total number of surveyed households by the type of bairro is presented in Table A2.3.

Final comments

Implementing surveys of this type in urban areas poses some difficulties. As many households have formal occupation, most of the times, the enumerators were advised to use a flexible schedule to meet and interview the households. Most frequently, the enumerators had to interview the households after 5:00pm because this is the only available time the households had because during the day were unavailable. This resulted that the survey extended its duration.

The implementation of the survey was delayed a few weeks until December 2010 due to several logistical and bureaucratic hurdles. But in general, the data collected reflects the opinions of the surveyed households and the sample previously designed was achieved.

Table A2.1. Urban land survey's sample

| NAMPULA CITY | | | MONAPO VILA | | |
|----------------|-----------------|---------------|-------------|-----------------|--------------|
| Bairro | HHs interviewed | Population | Bairro | HHs interviewed | Population |
| Muatala | 145 | 3,149 | Mecutane | 76 | 305 |
| Muhala-Sede | 147 | 6,292 | Boa Viagem | 78 | 186 |
| Mutauanha | 140 | 7,253 | Metoprine | 75 | 154 |
| Namutequeliua | 150 | 4,389 | Moagem | 63 | 357 |
| Muahivire | 299 | 4,933 | Mucaca | 74 | 563 |
| | | | Topelane | 72 | 383 |
| | | | Micolene | 73 | 239 |
| | | | Mulotine | 74 | 310 |
| | | | Naherengue | 78 | 221 |
| | | | Nova Cuamba | 69 | 695 |
| | | | Nachicuva | 77 | 840 |
| Total | 881 | 26,015 | | 809 | 4,253 |
| Overall | 1,690 | 30,268 | | | |

Source: MCA/MINAG Urban Land Survey, 2010

Table A2.2. Baseline Survey, Urban areas, Control and Treatment bairros

| <i>Distrit</i> | <i>Administrative Post</i> | <i>Bairro</i> | Control or Treatment |
|-----------------------|----------------------------|--------------------|-----------------------------|
| Monapo | Monapo-Sede | Mecutane | Treatment |
| Monapo | Monapo-Sede | Boa Viagem | Treatment |
| Monapo | Monapo-Sede | Metoprine | Treatment |
| Monapo | Monapo-Sede | Moagem | Treatment |
| Monapo | Monapo-Sede | Mucaca | Treatment |
| Monapo | Monapo-Sede | Topelane | Treatment |
| <i>Monapo</i> | <i>Monapo-Sede</i> | <i>Micolene</i> | <i>Control</i> |
| <i>Monapo</i> | <i>Monapo-Sede</i> | <i>Mulotine</i> | <i>Control</i> |
| <i>Monapo</i> | <i>Monapo-Sede</i> | <i>Naherengue</i> | <i>Control</i> |
| <i>Monapo</i> | <i>Monapo-Sede</i> | <i>Nova Cuamba</i> | <i>Control</i> |
| <i>Monapo</i> | <i>Monapo-Sede</i> | <i>Nachicuva</i> | <i>Control</i> |
| Nampula Cidade | Muhala | Nametequeliua | Treatment |
| Nampula Cidade | Muhala | Muhale-Sede | Treatment |
| Nampula Cidade | Muhala | Muahivire | Treatment* |
| <i>Nampula Cidade</i> | <i>Muatala</i> | <i>Mutauanha</i> | <i>Control</i> |
| <i>Nampula Cidade</i> | <i>Muatala</i> | <i>Muatala</i> | <i>Control</i> |

Table A2.3. Number of households surveyed by type of bairro

| NAMPULA CITY | | | MONAPO VILA | | |
|-----------------|-----------|---------|-----------------|-----------|---------|
| HHs interviewed | | | HHs interviewed | | |
| Bairro | Treatment | Control | Bairro | Treatment | Control |
| Muatala | | 145 | Mecutane | 76 | |
| Muhala-Sede | 147 | | Boa Viagem | 78 | |
| Mutauanha | | 140 | Metoprine | 75 | |
| Namutequeliua | 150 | | Moagem | 63 | |
| Muahivire | 299 | | Mucaca | 74 | |
| | | | Topelane | 72 | |
| | | | Micolene | | 73 |
| | | | Mulotine | | 74 |
| | | | Naherengue | | 78 |
| | | | Nova Cuamba | | 69 |
| | | | Nachicuva | | 77 |
| Total | 596 | 285 | | 438 | 371 |
| Overall | | | | | |
| Treatment | | | 1,034 | | |
| Control | | | 656 | | |

Source: MCA/MINAG Urban Land Survey, 2010

Annex 3. Key results presented by the two urban areas and the gender of the head of the household

Note: Table numbers (after A3) correspond to the Tables presenting similar results by treatment and control areas in the main body of the report.

Table A3.9. Demographic characteristics

| Table A5.9: Demographic characteristics | | | | | | | | | | | | |
|---|--------------|-----|-------------|-----|-------|-------|-------------|-------|---------------|-----|-------------|--------|
| Item | NAMPULA CITY | | MONAPO VILA | | Total | | Male-headed | | Female-headed | | Testing (a) | |
| | A | | B | | Mean | N | C | | D | | | |
| | Mean | N | Mean | N | | | Mean | N | Mean | N | | |
| % hh headed by women | 28.4 | 245 | 22.6 | 182 | 27.6 | 427 | | | | | *A>B | |
| Age of the household head (years) | 40.9 | 880 | 41.1 | 809 | 40.9 | 1,689 | 41.1 | 1,262 | 40.5 | 427 | | *C>D |
| Education of the head: | | | | | | | | | | | | |
| Know to read and write | 79% | 880 | 63% | 809 | 77% | 1,689 | 77% | 1,263 | 77% | 426 | ***A>B | |
| Currently enrolled | 11% | 878 | 7% | 809 | 11% | 1,687 | 9% | 1,262 | 15% | 425 | ***A>B | |
| Have ever been to school | 85% | 776 | 75% | 738 | 83% | 1,514 | 83% | 1,140 | 86% | 374 | | |
| Household size: | | | | | | | | | | | | |
| Total number of members | 5.7 | 881 | 5.2 | 809 | 5.6 | 1,690 | 5.7 | 1,263 | 5.6 | 427 | ***A>B | ***C>D |
| Total Adult Equivalent(b) | 4.3 | 881 | 3.9 | 809 | 4.3 | 1,690 | 4.3 | 1,263 | 4.2 | 427 | ***A>B | ***C>D |
| Women as percentage of all adults, 15 years of age or older | 51% | 881 | 52% | 809 | 51% | 1,690 | 0.5 | 1,263 | 0.6 | 427 | | ***C<D |
| Household composition: average number of members per age group | | | | | | | | | | | | |
| Infant (<5 years) | 1.0 | 881 | 1.0 | 809 | 1.0 | 1,690 | 1.0 | 1,263 | 0.9 | 427 | | *C>D |
| Child (5-15 years) | 1.7 | 881 | 1.6 | 809 | 1.7 | 1,690 | 1.7 | 1,263 | 1.8 | 427 | | |
| Adult (15-45 years) | 2.5 | 881 | 2.1 | 809 | 2.4 | 1,690 | 2.4 | 1,263 | 2.4 | 427 | ***A>B | ***C>D |
| Adult (45-60 years) | 0.4 | 881 | 0.4 | 809 | 0.4 | 1,690 | 0.4 | 1,263 | 0.4 | 427 | | |
| Older (> 60 years) | 0.1 | 881 | 0.1 | 809 | 0.1 | 1,690 | 0.1 | 1,263 | 0.1 | 427 | | |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(b) Factors drawn from Deaton (1997), used by Boughton et al. (2006) and Mather and Donovan (2009) for Mozambique.

(a) Significance testing (comparing A to B and C to D): * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

Table A3.10. Percentage of households reporting income from different sources and type of economic activity

| Item | NAMPULA CITY | | MONAPO VILA | | Total | | Male-headed | | Female-headed | | Testing (a) | |
|---|--------------|-----|-------------|-----|-------|-------|-------------|-------|---------------|-----|-------------|--------|
| | A | | B | | | | C | | D | | | |
| | Mean | N | Mean | N | Mean | N | Mean | N | Mean | N | | |
| Remittances and pensions | | | | | | | | | | | | |
| % hh received pension | 6.2% | 881 | 3.3% | 809 | 5.8% | 1,690 | 6.1% | 1263 | 5.0% | 427 | **A>B | |
| % hh received remittances | 21.6% | 881 | 25.8% | 809 | 22.2% | 1690 | 19.6% | 1263 | 28.9% | 427 | ***A>B | ***C>D |
| % of households engaged in agricultural activities: | | | | | | | | | | | | |
| Crop | 82.8% | 881 | 85.8% | 809 | 84.3% | 1,690 | 86.0% | 1,263 | 79.6% | 427 | *A<B | ***C<D |
| Livestock | 23% | 881 | 35% | 809 | 24% | 1,690 | 27% | 1,263 | 19% | 427 | ***A<B | ***C>D |
| Salaried employment: % households with members working as | | | | | | | | | | | | |
| Agricultural laborer | 11.9% | 881 | 2.4% | 809 | 10.6% | 1,690 | 11.3% | 1,263 | 8.7% | 427 | ***A>B | |
| Migrant worker | 0.1% | 881 | 0.6% | 809 | 0.2% | 1,690 | 0.1% | 1263 | 0.4% | 427 | | |
| Teacher, health service | 10.7% | 881 | 12.3% | 809 | 11.0% | 1,690 | 10.9% | 1,263 | 11.2% | 427 | | |
| Mechanic, construction, factory worker | 8.3% | 881 | 10.5% | 809 | 8.6% | 1,690 | 8.7% | 1263 | 8.3% | 427 | | |
| Manager, accountant, secretary | 2.7% | 881 | 4.5% | 809 | 3.0% | 1,690 | 2.8% | 1263 | 3.6% | 427 | | |
| Domestic worker | 3.0% | 881 | 4.9% | 809 | 3.3% | 1,690 | 3.6% | 1263 | 2.4% | 427 | **A<B | *C>D |
| Sales person, service industry | 0.6% | 881 | 0.3% | 809 | 0.6% | 1,690 | 0.8% | 1263 | 0.0% | 427 | **A<B | |
| Other salaried employee | 23.3% | 881 | 27.1% | 809 | 23.8% | 1,690 | 24.2% | 1263 | 22.8% | 427 | | |
| Self-employment: Forest and Fauna products | | | | | | | | | | | | |
| Cut/collect firewood | 14.6% | 881 | 53.5% | 809 | 20.0% | 1690 | 22.5% | 1263 | 13.3% | 427 | ***A<B | **C>D |
| Charcoal production | 0.7% | 881 | 1.4% | 809 | 0.8% | 1690 | 1.1% | 1263 | 0.2% | 427 | **A<B | *C>D |
| Cut grass, cane, palm tree leaves | 4.1% | 881 | 24.9% | 809 | 7.0% | 1690 | 7.3% | 1263 | 6.3% | 427 | ***A<B | |
| Cut branches | 1.1% | 881 | 7.5% | 809 | 2.0% | 1690 | 2.4% | 1263 | 1.0% | 427 | ***A<B | *C>D |
| Collect honey, bush plants and fruits, eggs of wild animals | 0.1% | 881 | 0.2% | 809 | 0.1% | 1690 | 0.1% | 1263 | 0.1% | 427 | | |
| Hunting | 0.2% | 881 | 0.5% | 809 | 0.2% | 1690 | 0.3% | 1263 | 0.0% | 427 | | **C>D |
| Fishing | 0.3% | 881 | 1.9% | 809 | 0.5% | 1690 | 0.5% | 1263 | 0.5% | 427 | ***A<B | |
| Wood production | 0.4% | 881 | 0.3% | 809 | 0.4% | 1690 | 0.5% | 1263 | 0.0% | 427 | | |
| Catching birds and reptiles | 0.2% | 881 | 0.5% | 809 | 0.3% | 1690 | 0.4% | 1263 | 0.0% | 427 | | **C>D |
| Cut/collect firewood | 78.4% | 881 | 9.3% | 809 | 68.7% | 1690 | 64.9% | 1263 | 78.6% | 427 | | ***C>D |
| Unreported | 14.6% | 881 | 53.5% | 809 | 20.0% | 1690 | 22.5% | 1263 | 13.3% | 427 | ***A<B | **C>D |
| Other self-employment activities: | | | | | | | | | | | | |
| % of households undertaking these activities | 59.4% | 881 | 47.3% | 809 | 57.7% | 1,690 | 55.3% | 1,263 | 64.2% | 427 | ***A>B | |
| Production of home-made beverages | 5.2% | 881 | 4.1% | 809 | 5.1% | 1,690 | 4.6% | 1,263 | 6.4% | 427 | | *C<D |
| Purchase/sale of beverages | 3.5% | 881 | 2.5% | 809 | 3.4% | 1,690 | 2.9% | 1,263 | 4.6% | 427 | *A>B | |
| Purchase/sale of food products | 23.3% | 881 | 13.4% | 809 | 21.9% | 1,690 | 19.1% | 1,263 | 29.4% | 427 | ***A>B | ***C<D |
| Purchase/sale of all commercial goods | 2.8% | 881 | 3.6% | 809 | 2.9% | 1,690 | 3.1% | 1,263 | 2.5% | 427 | | *C>D |
| Purchase/sale of fish | 5.7% | 881 | 5.8% | 809 | 5.8% | 1,690 | 6.6% | 1,263 | 3.5% | 427 | | |
| Purchase/sale of small size livestock and its by-product | 0.9% | 881 | 1.0% | 809 | 0.9% | 1,690 | 0.6% | 1,263 | 1.7% | 427 | | |
| Purchase/sale of medium size livestock and its by-product | 3.9% | 881 | 3.1% | 809 | 3.8% | 1,690 | 4.0% | 1,263 | 3.3% | 427 | | |
| Purchase /sale of large size livestock and its by-product | 0.7% | 881 | 0.4% | 809 | 0.6% | 1,690 | 0.2% | 1,263 | 1.8% | 427 | | *C<D |
| Handcrafts/masonry/carpentry | 2.3% | 881 | 2.0% | 809 | 2.2% | 1,690 | 2.5% | 1,263 | 1.5% | 427 | | **C>D |

| | | | | | | | | | | | |
|--------------------------------|------|-----|------|-----|------|-------|------|-------|------|-----|--------|
| Tailoring/dressmaking | 1.3% | 881 | 2.4% | 809 | 1.5% | 1,690 | 1.8% | 1,263 | 0.5% | 427 | ***C>D |
| Radio/bike repair | 0.6% | 881 | 1.2% | 809 | 0.7% | 1,690 | 0.9% | 1,263 | 0.0% | 427 | ***C>D |
| Bricks production, bricklaying | 2.1% | 881 | 1.2% | 809 | 2.0% | 1,690 | 2.1% | 1,263 | 1.5% | 427 | |
| Milling or agro-processing | 0.3% | 881 | 0.2% | 809 | 0.3% | 1,690 | 0.2% | 1,263 | 0.6% | 427 | |
| Other activity | 6.7% | 881 | 6.3% | 809 | 6.7% | 1,690 | 6.5% | 1,263 | 7.0% | 427 | |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing comparing (A) and (B), (C) and (D); * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

If not noted, no significant was found differences

Table A3.11. Percentage of households owing various assets, by district and gender of the head

| Item | NAMPULA CITY | | MONAPO VILA | | Total | | Male-headed | | Female-headed | | Testing (a) |
|--|--------------|-----|-------------|-----|-------|------|-------------|------|---------------|-----|---------------|
| | A | | B | | | | C | | D | | |
| | Mean | N | Mean | N | Mean | N | Mean | N | Mean | N | |
| Car, purchased new | 0.5% | 881 | 0.2% | 809 | 0.5% | 1690 | 0.4% | 1263 | 0.7% | 427 | |
| Car, purchased second hand | 3.9% | 881 | 1.1% | 809 | 3.5% | 1690 | 3.9% | 1263 | 2.3% | 427 | ***A>B |
| Motorcycle | 13.5% | 881 | 15.1% | 809 | 13.7% | 1690 | 15.1% | 1263 | 10.2% | 427 | **C>D |
| Bicycle | 15.8% | 881 | 30.9% | 809 | 18.0% | 1690 | 20.2% | 1263 | 11.9% | 427 | ***A<B ***C>D |
| Radio | 45.9% | 881 | 44.2% | 809 | 45.6% | 1690 | 49.2% | 1263 | 36.3% | 427 | **A>B **C>D |
| Sound system | 26.1% | 881 | 12.5% | 809 | 24.2% | 1690 | 24.8% | 1263 | 22.7% | 427 | ***A>B ***C>D |
| Television | 51.3% | 881 | 19.5% | 809 | 46.8% | 1690 | 47.3% | 1263 | 45.7% | 427 | ***A>B |
| Washing machine | 0.1% | 881 | 0.5% | 809 | 0.2% | 1690 | 0.1% | 1263 | 0.3% | 427 | |
| Air conditioner | 0.5% | 881 | 0.9% | 809 | 0.5% | 1690 | 0.5% | 1263 | 0.6% | 427 | |
| Sewing machine | 3.6% | 881 | 3.2% | 809 | 3.6% | 1690 | 3.9% | 1263 | 2.7% | 427 | |
| Fridge | 6.5% | 881 | 2.0% | 809 | 5.8% | 1690 | 5.9% | 1263 | 5.7% | 427 | ***A>B ***C>D |
| Freezer | 29.3% | 881 | 11.6% | 809 | 26.9% | 1690 | 26.8% | 1263 | 26.9% | 427 | ***A>B |
| Electric iron | 23.1% | 881 | 6.5% | 809 | 20.7% | 1690 | 20.4% | 1263 | 21.6% | 427 | ***A>B |
| Coal iron | 36.4% | 881 | 31.7% | 809 | 35.8% | 1690 | 37.1% | 1263 | 32.3% | 427 | ***A>B ***C>D |
| Fan | 28.0% | 881 | 14.8% | 809 | 26.2% | 1690 | 26.8% | 1263 | 24.4% | 427 | ***A>B ***C>D |
| Beds (double, single, cot for children, and bunk beds) | 84.6% | 881 | 64.8% | 809 | 81.8% | 1690 | 82.3% | 1263 | 80.7% | 427 | ***A>B ***C>D |
| Landline telephone handset | 0.5% | 881 | 1.2% | 809 | 0.6% | 1690 | 0.6% | 1263 | 0.6% | 427 | |
| Mobile phone | 59.8% | 881 | 37.3% | 809 | 56.6% | 1690 | 55.8% | 1263 | 58.8% | 427 | ***A>B |
| Computer | 4.2% | 881 | 1.5% | 809 | 3.8% | 1690 | 3.8% | 1263 | 3.8% | 427 | ***A>B |
| Printer | 2.0% | 881 | 1.2% | 809 | 1.9% | 1690 | 2.2% | 1263 | 1.2% | 427 | **A>B **C>D |
| Wall clocks, wrist or pocket | 29.9% | 881 | 27.7% | 809 | 29.6% | 1690 | 31.5% | 1263 | 24.6% | 427 | |
| Electric stove | 2.6% | 881 | 1.2% | 809 | 2.4% | 1690 | 2.6% | 1263 | 1.8% | 427 | ***A>B ***C>D |
| Gas stove | 0.6% | 881 | 1.0% | 809 | 0.7% | 1690 | 0.7% | 1263 | 0.5% | 427 | |
| Mixed Stove | 0.1% | 881 | 5.0% | 809 | 0.8% | 1690 | 0.9% | 1263 | 0.4% | 427 | ***A<B |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing (comparing (A), (B) and (C), (D): * indicates significant difference at 10% level, ** at 5%, and *** at 1%. If not noted, no significant was found differences

Table A3.12. Average number and value of purchased assets per household

| Item | NAMPULA CITY | | MONAPO VILA | | Total | | Male-headed | | Female-headed | | Testing (a) | |
|---|--------------|-----|-------------|-----|----------|-------|-------------|-------|---------------|-----|-------------|--------|
| | A | | B | | | | C | | D | | | |
| | Mean | N | Mean | N | Mean | N | Mean | N | Mean | N | | |
| Average total number of assets per household | 6.6 | 881 | 4.5 | 809 | 6.3 | 1,690 | 6.5 | 1,263 | 5.9 | 427 | ***A>B | ***C>D |
| Average number of assets recently purchased | 0.6 | 881 | 0.6 | 809 | 0.6 | 1,690 | 0.7 | 1,263 | 0.5 | 427 | | ***C>D |
| Total value of assets recently purchased per household (Mt) | 154.70 | 881 | 86.01 | 809 | 145.05 | 1,690 | 166.96 | 1,263 | 87.43 | 427 | *A>B | ***C>D |
| Total value of assets recently purchased per household (Mt) | 4,255.69 | 881 | 2,366.06 | 809 | 3,990.20 | 1,690 | 4,593.07 | 1,263 | 2,405.23 | 427 | *A>B | ***C>D |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing (comparing (A), (B) and (C), (D): * indicates significant difference at 10% level, ** at 5%, and *** at 1%

Table A3.13. Production and sales of livestock and sub-products in the last 12 months

| Item | NAMPULA CITY | | MONAPO VILA | | Total | | Male-headed | | Female-headed | | Testing (a) | |
|---|--------------|-----|-------------|-----|-------|-------|-------------|-------|---------------|-----|-------------|--------|
| | A | | B | | | | C | | D | | | |
| | Mean | N | Mean | N | Mean | N | Mean | N | Mean | N | | |
| % hhs that raised animal in the last 12 months | 22.7% | 881 | 34.9% | 809 | 24.4% | 1,690 | 26.7% | 1,263 | 18.6% | 427 | ***A<B | ***C>D |
| <u>Among the households that raised animals:</u> | | | | | | | | | | | | |
| % hhs that sold animals alive in the last 12 months | 10.8% | 216 | 23.2% | 295 | 13.3% | 511 | 13.5% | 406 | 12.6% | 105 | ***A<B | |
| % hhs that sold slaughtered animals in the last 12 months | 54.1% | 216 | 54.7% | 295 | 54.2% | 511 | 54.8% | 406 | 52.2% | 105 | | |
| Average Tropical Livestock Units* | 0.27 | 216 | 0.24 | 295 | 0.26 | 511 | 0.28 | 406 | 0.21 | 105 | | *C>D |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing comparing (A) and (B), (C) and (D): * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

*Livestock Unit (LU) conversion factors: Cattle (0.65), buffalo (0.70), sheep and goats (0.10), pigs (0.25) and poultry (0.01) (FAO, 2005), exclude rabbits.

Table A3.14. Access to credit in the last 12 months

| Item | NAMPULA CITY | | MONAPO VILA | | Total | | Male-headed | | Female-headed | | Testing (a) |
|--|--------------|-----|-------------|-----|-------|------|-------------|------|---------------|-----|-------------|
| | A | | B | | | | C | | D | | |
| | Mean | N | Mean | N | Mean | N | Mean | N | Mean | N | |
| % of households that applied for credit in the last 12 months | 7.4% | 881 | 6.7% | 809 | 7.0% | 1690 | 7.4% | 1263 | 5.9% | 427 | ***C>D |
| Reasons for applying for credit (% of households): | | | | | | | | | | | |
| Food consumption | 20.3% | 67 | 36.8% | 64 | 28.3% | 131 | 34.0% | 109 | 10.3% | 22 | **C>D |
| Agricultural investment | 4.6% | 67 | 4.4% | 64 | 4.5% | 131 | 5.5% | 109 | 1.5% | 22 | **C>D |
| Ceremonies | 10.8% | 67 | 6.2% | 64 | 8.6% | 131 | 6.5% | 109 | 15.0% | 22 | *A>B |
| Education | 2.0% | 67 | 14.3% | 64 | 7.9% | 131 | 9.7% | 109 | 2.5% | 22 | |
| Health | 30.5% | 67 | 2.0% | 64 | 16.7% | 131 | 21.3% | 109 | 2.7% | 22 | |
| Asset purchase | 31.9% | 67 | 21.7% | 64 | 27.0% | 131 | 23.5% | 109 | 37.7% | 22 | |
| Travel | 7.9% | 67 | 0.0% | 64 | 4.1% | 131 | 5.4% | 109 | 0.0% | 22 | *A>B |
| Other | 33.0% | 67 | 35.0% | 64 | 33.9% | 131 | 30.4% | 109 | 45.0% | 22 | |
| For those who did not apply, reasons for not applying for credit (% of households): | | | | | | | | | | | |
| No need | 20.5% | 814 | 20.9% | 745 | 20.7% | 1559 | 19.6% | 1153 | 23.7% | 406 | |
| Was refused | 2.5% | 814 | 1.8% | 745 | 2.1% | 1559 | 2.0% | 1153 | 2.4% | 406 | |
| Lack of access | 19.9% | 814 | 19.5% | 745 | 19.7% | 1559 | 20.4% | 1153 | 17.8% | 406 | |
| Concerned about not being accepted | 28.0% | 814 | 27.7% | 745 | 27.8% | 1559 | 27.6% | 1153 | 28.5% | 406 | |
| Lack of collateral | 11.6% | 814 | 12.9% | 745 | 12.3% | 1559 | 13.1% | 1153 | 10.2% | 406 | |
| High transaction costs | 4.3% | 814 | 2.7% | 745 | 3.5% | 1559 | 3.4% | 1153 | 3.8% | 406 | |
| Do not want to offer collateral | 2.0% | 814 | 3.4% | 745 | 2.7% | 1559 | 2.6% | 1153 | 3.1% | 406 | |
| Do not want to have debts | 7.8% | 814 | 8.0% | 745 | 7.9% | 1559 | 8.3% | 1153 | 6.8% | 406 | |
| Other | 2.8% | 814 | 3.1% | 745 | 3.0% | 1559 | 3.1% | 1153 | 2.7% | 406 | |
| Source: MCA/MINAG's Urban Land Survey, 2010 | | | | | | | | | | | |
| Weighted to reflect population | | | | | | | | | | | |
| (a) Significance testing comparing (A) and (B), (C) and (D); * indicates significant difference at 10% level, ** at 5%, and *** at 1%. | | | | | | | | | | | |

Table A3.15. Percentage of households that applied for credit by source of credit

| Item | NAMPULA CITY | | MONAPO VILA | | Total | | Male-headed | | Female-headed | | Testing (a) |
|---------------------|--------------|----|-------------|----|-------|-----|-------------|-----|---------------|----|-------------|
| | A | | B | | | | C | | D | | |
| | Mean | N | Mean | N | Mean | N | Mean | N | Mean | N | |
| Government | 6.4% | 67 | 13.3% | 64 | 9.7% | 131 | 11.2% | 109 | 5.3% | 22 | |
| Bank | 42.6% | 67 | 39.4% | 64 | 41.0% | 131 | 39.4% | 109 | 46.3% | 22 | |
| Associations | 15.2% | 67 | 11.0% | 64 | 13.2% | 131 | 11.4% | 109 | 18.6% | 22 | |
| Companies | 0.3% | 67 | 0.7% | 64 | 0.5% | 131 | 0.6% | 109 | 0.0% | 22 | *C>D |
| NGOs | 0.0% | 67 | 4.0% | 64 | 1.9% | 131 | 2.5% | 109 | 0.0% | 22 | **C>D |
| Traders/Businessmen | 1.2% | 67 | 0.7% | 64 | 1.0% | 131 | 1.1% | 109 | 0.6% | 22 | |
| Relatives | 12.9% | 67 | 4.7% | 64 | 8.9% | 131 | 6.8% | 109 | 15.7% | 22 | |
| Friends | 22.1% | 67 | 26.6% | 64 | 24.2% | 131 | 27.7% | 109 | 13.5% | 22 | |
| Other | 0.9% | 67 | 4.0% | 64 | 2.4% | 131 | 3.1% | 109 | 0.0% | 22 | ***C>D |
| Government | 6.4% | 67 | 13.3% | 64 | 9.7% | 131 | 11.2% | 109 | 5.3% | 22 | |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing comparing (A) and (B), (C) and (D); * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

Table A3.16. Amount requested and accessed per household and reasons for not accessing credit

| Item | NAMPULA CITY | | MONAPO VILA | | Total | | Male-headed | | Female-headed | | Testing (a) |
|---|--------------|-----|-------------|-----|----------|------|-------------|------|---------------|-----|----------------|
| | A | | B | | | | C | | D | | |
| | Mean | N | Mean | N | Mean | N | Mean | N | Mean | N | |
| % of households that applied for credit in the last 12 months | 7.4% | 881 | 6.7% | 809 | 7.0% | 1690 | 7.4% | 1263 | 5.9% | 427 | ***C>D |
| <i>Among those who applied (total N=131):</i> | | | | | | | | | | | |
| Average total amount requested per household (\$US) | 1,096.69 | 67 | 1,217.37 | 64 | 1,154.78 | 131 | 1,378.20 | 109 | 461.72 | 22 | ***C>D |
| Median total amount requested per household (\$US) | 254.45 | 67 | 181.75 | 64 | 218.10 | 131 | 254.45 | 109 | 181.75 | 22 | ***C>D |
| % of households that had to present collateral | 13.4% | 67 | 19.1% | 64 | 16.1% | 131 | 18.2% | 109 | 9.7% | 22 | |
| <i>% of households by type of collateral presented:</i> | | | | | | | | | | | |
| House | 6.6% | 67 | 0.0% | 65 | 3.4% | 132 | 0.7% | 111 | 12.5% | 21 | **A>B |
| Other | 5.2% | 67 | 7.5% | 65 | 6.3% | 132 | 8.0% | 111 | 0.6% | 21 | |
| Unreported | 1.6% | 67 | 11.6% | 65 | 6.4% | 132 | 9.5% | 111 | 0.0% | 21 | |
| % household that received credit | 85.2% | 67 | 76.5% | 64 | 81.0% | 131 | 75.7% | 109 | 97.4% | 22 | |
| % households that were denied credit | 14.8% | 67 | 23.5% | 64 | 19.0% | 131 | 24.3% | 109 | 2.6% | 22 | **A>B |
| <i>Among those who received credit (total N=95):</i> | | | | | | | | | | | |
| Average amount received per household (\$US) | 497.93 | 49 | 798.11 | 46 | 634.39 | 95 | 726.93 | 76 | 411.22 | 19 | **A<C |
| Median amount received per household (\$US) | 181.75 | 49 | 181.75 | 46 | 181.75 | 95 | 145.40 | 76 | 181.75 | 19 | **A<C |
| Average amount to repay per household (\$US) | 598.55 | 49 | 1,042.62 | 46 | 800.41 | 95 | 844.35 | 76 | 694.46 | 19 | **A<B |
| Median amount to repay per household (\$US) | 218.10 | 49 | 472.56 | 46 | 218.10 | 95 | 145.40 | 76 | 363.50 | 19 | **A<B |
| Average time to repay the credit (years) | 0.97 | 49 | 1.0 | 46 | 1.0 | 95 | 0.87 | 76 | 1.23 | 19 | |
| <i>Among those who were denied credit (total N=36):</i> | | | | | | | | | | | |
| <i>% of household by reasons for not getting credit:</i> | | | | | | | | | | | |
| Insufficient income | 8.6% | 18 | 39.3% | 18 | 26.9% | 36 | 27.8% | 33 | 0.0% | 3 | **A<B **C>D |
| Insufficient collateral | 12.2% | 18 | 37.1% | 18 | 27.0% | 36 | 27.1% | 33 | 24.5% | 3 | ***A<B |
| Other debts | 2.5% | 18 | 0.0% | 18 | 1.0% | 36 | 1.0% | 33 | 0.0% | 3 | **A>B |
| Other reason | 73.5% | 18 | 21.9% | 18 | 42.8% | 36 | 42.3% | 33 | 57.6% | 3 | ***A>B |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing (comparing A to B and C to D): * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

Table A3.19. Number of parcel by type of use by location and gender of the household head

| Type of parcel | Location of parcel | | Total | Male-headed | Female-headed |
|--|--------------------|--------------|--------------|--------------|---------------|
| | Nampula | Monapo | | | |
| Belong to hh and currently in their possession | 1,014 | 886 | 1,900 | 1,404 | 496 |
| Residential parcels: | 874 | 727 | 1,601 | 1,196 | 405 |
| Agriculture parcels: | 140 | 159 | 299 | 208 | 91 |
| Rented-out or lent to others | 43 | 51 | 94 | 76 | 18 |
| Residential parcels: | 42 | 43 | 85 | 68 | 17 |
| Agriculture parcels: | 1 | 8 | 9 | 8 | 1 |
| Rented-in or borrowed from others | 77 | 83 | 160 | 122 | 38 |
| Residential parcels: | 9 | 30 | 39 | 33 | 6 |
| Agriculture parcels: | 68 | 53 | 121 | 89 | 32 |
| Total | 1,134 | 1,020 | 2,154 | 1,602 | 552 |
| Source: MCA/MINAG's Urban Land Survey, 2010 | | | | | |

Table A3.20. Number of land parcels and parcel characteristics

| Item | NAMPULA CITY A | | MONAPO VILA B | | Total | | Male-headed C | | Female-headed D | | Testing (a) | |
|--|-------------------|------|------------------|------|---------|------|------------------|------|--------------------|-----|-------------|--------|
| | Mean | N | Mean | N | Mean | N | Mean | N | Mean | N | | |
| | | | | | | | | | | | | |
| Average number of parcels per hh: | | | | | | | | | | | | |
| Parcels belong to hh and currently in their possession | 1.5 | 881 | 2.4 | 809 | 1.6 | 1690 | 1.7 | 1263 | 1.5 | 427 | ***A<B | ***C>D |
| Parcels rented-out or lent to others | 0.1 | 881 | 0.1 | 809 | 0.1 | 1690 | 0.1 | 1263 | 0.1 | 427 | ***A<B | |
| Parcels rented-in or borrowed | 0.3 | 881 | 0.4 | 809 | 0.3 | 1690 | 0.3 | 1263 | 0.3 | 427 | ***A<B | *C>D |
| Average total no. of parcels per hh | 1.9 | 881 | 2.9 | 809 | 2.0 | 1690 | 2.1 | 1263 | 1.9 | 427 | ***A<B | ***C>D |
| Average total area of parcels (m2) owned by a hh(b) | | | | | | | | | | | | |
| | 1,498.8 | 1130 | 2,175.4 | 1017 | 1,596.4 | 2147 | 1,775.5 | 1596 | 1,111.0 | 551 | **A<B | **C<D |
| Average parcel area (m²) by parcel type: | | | | | | | | | | | | |
| Parcels that belong to hh and currently in their possession | 1,290.5 | 1010 | 2,062.3 | 883 | 1,399.8 | 1893 | 1,565.8 | 1398 | 950.6 | 495 | **A<B | **C<D |
| Parcels rented-out or lent to others | 404.4 | 43 | 1,143.2 | 51 | 540.6 | 94 | 519.7 | 76 | 601.5 | 18 | **A<B | |
| Parcels rented-in or borrowed | 4,397.4 | 77 | 3,939.6 | 83 | 4,326.7 | 160 | 4,772.3 | 122 | 3,137.5 | 38 | | |
| Average parcel area (m²) by parcel's main use: | | | | | | | | | | | | |
| Residence | 591.8 | 921 | 613.4 | 797 | 594.7 | 1718 | 655.9 | 1291 | 428.9 | 427 | | ***C>D |
| Agriculture | 5,910.0 | 209 | 7,738.9 | 220 | 6,235.6 | 429 | 6,971.3 | 305 | 4,253.6 | 124 | **A<B | |

Source: MCA/MINAG's Urban Land Survey, 2010
Weighted to reflect population
(a) Significance testing comparing (A) and (B), (C) and (D); * indicates significant difference at 10% level, ** at 5%, and *** at 1%.
(b) 7 parcels with no information on the land size

Table A3.21: Types of agricultural uses of land parcels

| Item | NAMPULA CITY | | MONAPO VILA | | Total | | Male-headed | | Female-headed | | Testing (a) |
|--|--------------|------|-------------|------|--------|-------|-------------|------|---------------|-----|-------------|
| | A | | B | | | | C | | D | | |
| | Mean | N | Mean | N | Mean | N | Mean | N | Mean | N | |
| % hh using the parcels for residential purposes | 100.0% | 809 | 100.0% | 881 | 100.0% | 1,690 | 100.0% | 1263 | 100.0% | 427 | |
| % parcels used for residential purposes | 83.0% | 1134 | 78.1% | 1020 | 82.3% | 2154 | 82.3% | 1602 | 82.3% | 552 | |
| % of all parcels used for the following agricultural purposes (b): | | | | | | | | | | | |
| Annual crops | 95.6% | 207 | 91.7% | 217 | 94.9% | 424 | 96.0% | 300 | 92.0% | 124 | *C>D |
| Permanent crops | 43.0% | 207 | 35.2% | 217 | 41.6% | 424 | 45.4% | 300 | 31.6% | 124 | **C>D |
| Fallow | 11.8% | 207 | 4.0% | 217 | 10.4% | 424 | 11.2% | 300 | 8.2% | 124 | |
| Grazing | 0.0% | 207 | 0.0% | 217 | 0.0% | 424 | 0.0% | 300 | 0.0% | 124 | |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing comparing (A) and (B), (C) and (D); * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

(b) For those parcels used for agriculture, 5 did not report their type of use

Table A3.22: Access to utility and infrastructure in parcels used for residence purpose (b)

| Item | NAMPULA CITY | | MONAPO VILA | | Total | | Male-headed | | Female-headed | | Testing (a) | |
|---|--------------|------|-------------|------|-------|-------|-------------|------|---------------|-----|-------------|--------|
| | A | | B | | | | C | | D | | | |
| | Mean | N | Mean | N | Mean | N | Mean | N | Mean | N | | |
| % parcels by source of water most used in the parcels: | | | | | | | | | | | | |
| Tap | 62.0% | 1131 | 42.6% | 1013 | 59.2% | 2144 | 57.7% | 1592 | 63.3% | 552 | ***A>B | **C<D |
| Borehole | 1.8% | 1131 | 5.7% | 1013 | 2.4% | 2144 | 3.0% | 1592 | 0.8% | 552 | ***A<B | ***C>D |
| Well private | 21.2% | 1131 | 27.2% | 1013 | 22.1% | 2144 | 24.0% | 1592 | 16.8% | 552 | **A<B | ***C>D |
| Public fountain | 7.4% | 1131 | 7.8% | 1013 | 7.4% | 2144 | 7.0% | 1592 | 8.7% | 552 | | |
| River/lake | 6.1% | 1131 | 13.0% | 1013 | 7.1% | 2144 | 7.2% | 1592 | 6.7% | 552 | ***A<B | |
| Other | 1.4% | 1131 | 3.6% | 1013 | 1.7% | 2144 | 1.0% | 1592 | 3.7% | 552 | ***A<B | ***C<D |
| % parcels by route of access most used in the parcels: | | | | | | | | | | | | |
| Primary road | 2.7% | 1131 | 11.7% | 1013 | 4.0% | 2144 | 3.9% | 1592 | 4.2% | 552 | ***A<B | |
| Secondary road | 14.7% | 1131 | 18.3% | 1013 | 15.2% | 2144 | 15.6% | 1592 | 14.2% | 552 | | |
| Tertiary road | 42.5% | 1131 | 36.8% | 1013 | 41.7% | 2,144 | 42.7% | 1592 | 39.0% | 552 | *T>C | |
| Unpaved road | 23.5% | 1131 | 21.5% | 1013 | 23.2% | 2,144 | 22.7% | 1592 | 24.4% | 552 | | |
| Other | 16.6% | 1131 | 11.7% | 1013 | 15.9% | 2,144 | 15.1% | 1592 | 18.1% | 552 | **A>B | *C<D |
| % of parcels with other amenities on the parcels (c): | | | | | | | | | | | | |
| % parcels that have electricity in their parcels | 48.3% | 1131 | 23.3% | 1013 | 44.7% | 2,144 | 44.1% | 1592 | 46.2% | 552 | ***A>B | |
| % parcels that have landline in their parcels | 1.1% | 1131 | 1.1% | 1013 | 1.1% | 2,144 | 0.8% | 1592 | 1.8% | 552 | | *C<D |
| % parcels that have access to mobile network in their parcels | 91.1% | 1131 | 81.8% | 1013 | 89.8% | 2,144 | 89.2% | 1592 | 91.3% | 552 | ***A>B | |
| % parcels with fruit trees (d) | 66.3% | 1132 | 56.3% | 1008 | 64.9% | 2,140 | 67.5% | 1588 | 57.9% | 552 | ***A>B | ***C>D |
| Average total number of fruit trees per parcel | 7.8 | 737 | 5.3 | 565 | 7.5 | 1,302 | 8.0 | 1001 | 6.0 | 301 | ***A>B | |
| Average number of buildings per parcel | 1.2 | 1132 | 1.0 | 1020 | 1.2 | 2,152 | 1.2 | 1600 | 1.2 | 552 | ***A>B | |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing (comparing A to B and C to D): * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

(b) 10 parcels with no information on the access to services

(d) 14 parcels in did not report whether there was fruit trees on the parcels.

(e) 2 parcels did not report the number of buildings

Table A3.23. Parcel distribution by mode of acquisition

| Item (b) | NAMPULA CITY | | MONAPO VILA | | Total | | Male-headed | | Female-headed | | Testing (a) |
|----------------------------------|--------------|------|-------------|-----|-------|------|-------------|------|---------------|-----|-------------|
| | A | | B | | | | C | | D | | |
| | Mean | N | Mean | N | Mean | N | Mean | N | Mean | N | |
| Ceded by traditional authorities | 4.4% | 1049 | 5.2% | 930 | 4.5% | 1979 | 4.1% | 1564 | 6.0% | 415 | *C<D |
| Ceded by formal authorities | 2.5% | 1049 | 3.7% | 930 | 2.7% | 1979 | 2.3% | 1564 | 4.3% | 415 | **C<D |
| Ceded by relatives | 13.1% | 1049 | 15.4% | 930 | 13.5% | 1979 | 14.7% | 1564 | 8.5% | 415 | ***C>D |
| Occupied | 11.2% | 1049 | 6.8% | 930 | 10.6% | 1979 | 10.4% | 1564 | 11.1% | 415 | **A>B |
| Purchased | 51.1% | 1049 | 51.7% | 930 | 51.2% | 1979 | 52.6% | 1564 | 45.6% | 415 | **C>D |
| Inherited | 17.0% | 1049 | 16.7% | 930 | 16.9% | 1979 | 15.0% | 1564 | 24.6% | 415 | ***C<D |
| Other | 0.7% | 1049 | 0.4% | 930 | 0.6% | 1979 | 0.8% | 1564 | 0.0% | 415 | *C>D |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing (comparing A to B and C to D): * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

(b) 15 parcels did not report the form of acquisition

Table A3.24. Agencies involved in and the cost of land acquisition (for parcels in the possession of the households and those rented-out)

| Item | NAMPULA CITY | | MONAPO VILA | | Total | | Male-headed | | Female-headed | | Testing (a) |
|--|--------------|-----|-------------|-----|----------|------|-------------|-----|---------------|-----|--------------|
| | A | | B | | | | C | | D | | |
| | Mean | N | Mean | N | Mean | N | Mean | N | Mean | N | |
| % parcels by people involved in the acquisition of parcel (b): | | | | | | | | | | | |
| Community leaders | 87.4% | 618 | 87.9% | 566 | 87.5% | 1184 | 89.8% | 936 | 78.9% | 248 | **C>D |
| Local court | 2.6% | 618 | 2.4% | 566 | 2.5% | 1184 | 3.1% | 936 | 0.6% | 248 | |
| District authorities | 0.4% | 618 | 0.0% | 566 | 0.3% | 1184 | 0.4% | 936 | 0.0% | 248 | *C>D |
| Lawyer | 2.7% | 618 | 1.9% | 566 | 2.6% | 1184 | 2.5% | 936 | 3.0% | 248 | |
| Other | 20.2% | 618 | 20.3% | 566 | 20.2% | 1184 | 18.8% | 936 | 25.2% | 248 | |
| Average No. of agencies involved | 1.13 | 618 | 1.13 | 566 | 1.13 | 1184 | 1.15 | 936 | 1.08 | 248 | |
| Average total cost of acquiring the parcel with involvement of (Mt): | | | | | | | | | | | |
| Community leaders | 15.77 | 530 | 36.20 | 482 | 18.71 | 1012 | 16.91 | 809 | 26.24 | 203 | *A<B |
| Local court | 212.87 | 15 | 913.11 | 13 | 304.09 | 28 | 271.93 | 23 | 858.56 | 5 | **A<B |
| District authorities | 1.00 | 1 | . | 0 | 1.00 | 1 | 1.00 | 1 | . | 0 | |
| Lawyer | 30.83 | 19 | 1,014.02 | 15 | 139.61 | 34 | 187.13 | 29 | 0.00 | 5 | ***A<B *C<D |
| Other | 0.22 | 123 | 73.55 | 114 | 10.72 | 237 | 14.71 | 177 | 0.00 | 60 | |
| Value paid to acquire the parcel aside from the above fees (Mt) | 7,059.94 | 618 | 6,744.44 | 566 | 7,014.33 | 1184 | 7,574.21 | 936 | 4,946.67 | 248 | ***A>B **C<D |
| Total value paid for acquisition of the parcel (Mt) | 7,079.51 | 618 | 6,828.87 | 566 | 7,043.28 | 1184 | 7,604.04 | 936 | 4,972.36 | 248 | ***A>B **C<D |
| Total value paid for acquisition of the parcel(Mt/m2) (c) | 21.38 | 616 | 32.02 | 562 | 22.91 | 1178 | 24.36 | 931 | 17.60 | 247 | |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing (comparing A to B and C to D): * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

(b) Multiple agents/authorities are allowed. Ten parcels had missing data on the agents involved in land acquisition

(c) There are 138 missing values generated in the estimation of acquisition cost per area due to the fact that the area was not reported

Table A3.25: Types of Land Documents Currently in Possession by Parcel Holder

| Table 10.10: Types of Land Documents Currently in Possession by Parcel Holder | | | | | | | | | | | |
|---|--------------|------|-------------|-----|-------|------|-------------|------|---------------|-----|-------------|
| | NAMPULA CITY | | MONAPO VILA | | Total | | Male-headed | | Female-headed | | Testing (a) |
| | A | | B | | | | C | | D | | |
| Item | Mean | N | Mean | N | Mean | N | Mean | N | Mean | N | |
| % parcels by type of documents currently existent that give them property rights to the parcel (b): | | | | | | | | | | | |
| DUAT | 0.5% | 1054 | 0.2% | 933 | 0.4% | 1987 | 0.5% | 1572 | 0.1% | 415 | |
| Provisional title | 2.4% | 1054 | 2.2% | 933 | 2.4% | 1987 | 2.4% | 1572 | 2.1% | 415 | |
| Certificate of cadastral services | 2.1% | 1054 | 2.2% | 933 | 2.1% | 1987 | 2.2% | 1572 | 1.9% | 415 | |
| Affidavit of purchase/sales | 28.3% | 1054 | 31.6% | 933 | 28.8% | 1987 | 28.8% | 1572 | 28.7% | 415 | |
| Other | 1.1% | 1054 | 1.2% | 933 | 1.1% | 1987 | 0.9% | 1572 | 1.7% | 415 | |
| None | 65.6% | 1054 | 62.5% | 933 | 65.2% | 1987 | 65.1% | 1572 | 65.4% | 415 | |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing (comparing A to B and C to D): * indicates significant difference at 10% level, ** at 5%, and *** at 1%. (b) 7 parcels did not provide information about the type of documents that confers the use right of the parcels

Table A3.26: Interest and willingness to pay for DUAT

| Item | NAMPULA CITY | | MONAPO VILA | | Total | | Male-headed | | Female-headed | | Testing (a) |
|---|--------------|------|-------------|-----|--------|------|-------------|------|---------------|-----|-------------|
| | A | | B | | | | C | | D | | |
| | Mean | N | Mean | N | Mean | N | Mean | N | Mean | N | |
| % parcels that have no DUAT and have initiated the process of obtaining DUAT (b) | 2.2% | 1046 | 3.0% | 922 | 2.4% | 1968 | 2.4% | 1555 | 2.3% | 413 | |
| Among the parcel with no DUAT and have not initiated the process of obtaining it: | | | | | | | | | | | |
| % parcels in which there is an interest in obtaining DUAT | 87.2% | 1019 | 85.9% | 893 | 87.0% | 1912 | 86.6% | 1509 | 88.5% | 403 | |
| Average amount per parcel that the hh is willing to pay to obtain DUAT (MT) (c) | 319.83 | 905 | 319.81 | 788 | 319.83 | 1693 | 289.58 | 1340 | 433.47 | 353 | ***C<D |
| Average amount per parcel that the hh is willing to pay to obtain DUAT per square meter (MT/m2) (d) | 1.37 | 901 | 1.20 | 784 | 1.35 | 1685 | 1.29 | 1333 | 1.56 | 352 | |
| Average amount per parcel that the hh is willing to pay to obtain DUAT per square meter per main use of the parcel (MT/m2): | | | | | | | | | | | |
| Residence | 1.53 | 777 | 1.41 | 644 | 1.51 | 1421 | 1.45 | 1122 | 1.76 | 299 | |
| Agriculture | 0.16 | 124 | 0.24 | 140 | 0.18 | 264 | 0.18 | 211 | 0.16 | 53 | |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing: * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

(b) 6 parcels did not report whether they have initiated the process of obtaining DUAT and thus not included in this analysis.

(c) 301 parcels did not report the value they are willing to pay for obtaining DUAT

(d) 645 parcels generated missing values in the estimation of willingness to pay for DUAT per area

Table A3.27. Hypothetical sale and rental prices of parcels belonging to the household surveyed

| Item | NAMPULA CITY A | | MONAPO VILA B | | Total | | Male-headed C | | Female-headed D | | Testing (a) |
|---|-------------------|-----|------------------|-----|-----------|------|------------------|-----|--------------------|-----|-------------|
| | Mean | N | Mean | N | Mean | N | Mean | N | Mean | N | |
| Average total value the parcel could be sold for (MT) (b) | 64,715.53 | 653 | 77,510.47 | 574 | 66,517.63 | 1227 | 65,834.19 | 961 | 69,065.09 | 266 | |
| <u>Average total value per main plot use:</u> | | | | | | | | | | | |
| Residence | 63,502.02 | 554 | 79,298.42 | 476 | 65,619.78 | 1030 | 64,511.31 | 807 | 69,777.79 | 223 | |
| Agriculture | 73,173.83 | 99 | 69,027.41 | 98 | 72,405.50 | 197 | 74,597.93 | 154 | 64,562.35 | 43 | |
| Average total value the parcel could be sold for (MT/m ²) (c) | 257.24 | 651 | 327.20 | 571 | 267.07 | 1222 | 274.03 | 956 | 241.27 | 266 | |
| <u>Value per main use:</u> | | | | | | | | | | | |
| Residence | 288.80 | 552 | 377.55 | 473 | 300.67 | 1025 | 308.03 | 802 | 273.23 | 223 | |
| Agriculture | 38.25 | 99 | 90.12 | 98 | 47.86 | 197 | 50.23 | 154 | 39.38 | 43 | |
| Average value a room for housing in the parcel could be rented out for (MT/month) (d) | 548.67 | 407 | 387.60 | 376 | 526.50 | 783 | 591.45 | 615 | 293.86 | 168 | |
| Average value a room for commercial purposes in the parcel could be rented out for (MT/month) (e) | 560.74 | 346 | 591.49 | 319 | 564.94 | 665 | 529.30 | 526 | 704.05 | 139 | |
| Average value the whole parcel could be rented out for (MT/month) (f) | 5,484.51 | 560 | 3,410.71 | 508 | 5,186.38 | 1068 | 5,766.49 | 832 | 3,019.38 | 236 | |
| Average monthly value the whole parcel could be rented out for (MT/m ²) (g) | 26.78 | 558 | 14.17 | 507 | 24.97 | 1065 | 26.42 | 829 | 19.58 | 236 | |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing (comparing A to B and C to D): * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

(b) 770 parcels with no hypothetical value

(c) For this calculation, 772 missing values were generated on the parcels without land size value

(d) 1,211 parcels with no information on the rental value

(e) 1,329 parcels with no information on the rental value

(f) 926 parcels with no information on the rental value

(g) 3 missing data due to missing information on land size

Table A3.28. Land conflicts experienced in the past and/or perceived in the future

| Item | NAMPULA CITY | | MONAPO VILA | | Total | | Male-headed | | Female-headed | | Testing (a) | |
|--|--------------|------|-------------|-----|-------|------|-------------|------|---------------|-----|-------------|--------|
| | A | | B | | | | C | | D | | | |
| | Mean | N | Mean | N | Mean | N | Mean | N | Mean | N | | |
| % parcels that experienced land conflicts (b) | 3.1% | 34 | 2.0% | 33 | 3.0% | 67 | 3.9% | 48 | 0.0% | 19 | **C>D | |
| % parcels concerned of having conflict in future (c) | 18.1% | 1053 | 16.0% | 934 | 17.8% | 1987 | 16.7% | 1572 | 22.2% | 415 | ***A>B | ***C<D |
| Among hh concerned, % parcels s citing the following people as the potential cause of conflict: | | | | | | | | | | | | |
| Traditional leaders | 3.1% | 197 | 8.0% | 156 | 3.7% | 353 | 3.5% | 273 | 4.3% | 80 | ***A<B | |
| Formal authorities | 42.1% | 197 | 45.2% | 156 | 42.5% | 353 | 48.0% | 273 | 26.6% | 80 | | ***C>D |
| Family | 11.4% | 197 | 10.1% | 156 | 11.3% | 353 | 10.7% | 273 | 12.9% | 80 | | **C<D |
| Neighbors | 33.7% | 197 | 22.1% | 156 | 32.2% | 353 | 28.0% | 273 | 44.3% | 80 | ***A>B | ***C<D |
| Firms | 5.2% | 197 | 8.1% | 156 | 5.6% | 353 | 5.5% | 273 | 6.0% | 80 | ***A<B | |
| Immigrants | 3.4% | 197 | 2.5% | 156 | 3.3% | 353 | 2.7% | 273 | 5.1% | 80 | *A>B | **C<D |
| Other | 1.0% | 197 | 3.5% | 156 | 1.3% | 353 | 1.6% | 273 | 0.5% | 80 | **A<B | *C>D |
| Unreported | 0.0% | 197 | 0.5% | 156 | 0.1% | 353 | 0.0% | 273 | 0.3% | 80 | *A<B | |
| Among hh concerned, % parcels citing the following types of issues as potential cause of conflict | | | | | | | | | | | | |
| Boundary errors | 29.0% | 197 | 20.2% | 156 | 27.8% | 353 | 24.0% | 273 | 39.1% | 80 | | **C>D |
| Weak cadastral services | 1.5% | 197 | 4.6% | 156 | 1.9% | 353 | 2.5% | 273 | 0.0% | 80 | *A<B | |
| Disagreement between heirs | 6.4% | 197 | 15.9% | 156 | 7.6% | 353 | 7.3% | 273 | 8.6% | 80 | *A<B | |
| Incomplete demarcation | 1.7% | 197 | 2.6% | 156 | 1.8% | 353 | 1.0% | 273 | 4.1% | 80 | | **C<D |
| Sales to more than one person | 0.0% | 197 | 0.5% | 156 | 0.1% | 353 | 0.1% | 273 | 0.0% | 80 | ***A<B | |
| Poor consultation with community leader | 2.6% | 197 | 0.4% | 156 | 2.3% | 353 | 2.5% | 273 | 1.8% | 80 | | |
| Lost parcel due to lack of DUAT | 32.4% | 197 | 36.4% | 156 | 33.0% | 353 | 36.2% | 273 | 23.4% | 80 | ***A<B | **C>D |
| Parcel recovered by the authorities | 19.1% | 197 | 16.9% | 156 | 18.8% | 353 | 21.5% | 273 | 10.8% | 80 | | ***C>D |
| Other | 5.4% | 197 | 1.9% | 156 | 4.9% | 353 | 2.5% | 273 | 11.9% | 80 | ***A>B | ***C<D |
| Unreported | 2.0% | 197 | 0.5% | 156 | 1.8% | 353 | 2.3% | 273 | 0.3% | 80 | | |
| Among hh concerned, % parcels reporting the following as the level of probability of losing the parcel due to conflict: | | | | | | | | | | | | |
| Highly probable | 25.6% | 197 | 24.7% | 156 | 25.5% | 353 | 27.5% | 273 | 19.5% | 80 | | |
| Moderately probable | 11.6% | 197 | 12.0% | 156 | 11.6% | 353 | 11.8% | 273 | 11.2% | 80 | | |
| Somewhat probable | 51.2% | 197 | 47.8% | 156 | 50.7% | 353 | 49.9% | 273 | 53.2% | 80 | *A>B | |
| Not probable | 5.8% | 197 | 7.2% | 156 | 6.0% | 353 | 5.6% | 273 | 7.2% | 80 | *A<B | |
| Does not know | 3.9% | 197 | 7.7% | 156 | 4.4% | 353 | 3.0% | 273 | 8.7% | 80 | *A<B | ***C<D |
| Unreported | 2.0% | 197 | 0.5% | 156 | 1.8% | 353 | 2.3% | 273 | 0.3% | 80 | | |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing (comparing A to B and C to D): * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

(b) 1,927 parcels did not respond to the question and are thus treated as missing observations

(c) 7 parcels did not respond to the question about the concern of having land conflict in future and are thus considered missing observations.

Table A3.29. Information on renting -out parcels

| Table A3.23: Information on renting out parcels | | | | | | | | | | | |
|---|--------------|------|-------------|------|----------|------|-------------|------|---------------|-----|-------------|
| | NAMPULA CITY | | MONAPO VILA | | Total | | Male-headed | | Female-headed | | Testing (a) |
| | A | | B | | | | C | | D | | |
| Item | Mean | N | Mean | N | Mean | N | Mean | N | Mean | N | |
| % hh that have parcels rented out or lent to other | 6.3% | 937 | 9.5% | 753 | 6.7% | 1690 | 6.6% | 1263 | 7.1% | 427 | ***A<B |
| % parcels rented-out | 3.5% | 1132 | 4.8% | 1022 | 3.7% | 2154 | 3.8% | 1602 | 3.5% | 552 | |
| For those that have rented out/lent to others (b): | | | | | | | | | | | |
| % parcels by the relationship of the tenant to the owner of the parcel in the HH: | | | | | | | | | | | |
| Head | 1.3% | 42 | 4.5% | 45 | 1.8% | 87 | 2.1% | 73 | 0.0% | 14 | |
| Spouse | 1.3% | 42 | 0.0% | 45 | 1.1% | 87 | 1.3% | 73 | 0.0% | 14 | |
| Child | 0.0% | 42 | 7.9% | 45 | 1.3% | 87 | 0.7% | 73 | 5.1% | 14 | **A<B |
| Sibling | 5.8% | 42 | 28.7% | 45 | 9.6% | 87 | 8.4% | 73 | 17.2% | 14 | ***A<B |
| Parent | 0.0% | 42 | 0.0% | 45 | 0.0% | 87 | 0.0% | 73 | 0.0% | 14 | |
| Niece/nephew | 2.0% | 42 | 11.4% | 45 | 3.5% | 87 | 4.1% | 73 | 0.0% | 14 | *A<B |
| Other relative | 15.1% | 42 | 23.0% | 45 | 16.4% | 87 | 17.3% | 73 | 10.9% | 14 | |
| Nonrelatives | 74.6% | 42 | 24.5% | 45 | 66.2% | 87 | 66.1% | 73 | 66.9% | 14 | ***A>B |
| Monthly rental rate (MT/month) | 1,896.16 | 42 | 0.00 | 43 | 1,587.85 | 85 | 1,834.06 | 71 | 71.06 | 14 | |
| Average total size of land currently rented out (m2) | 402.94 | 42 | 1,204.48 | 43 | 533.27 | 85 | 494.47 | 71 | 772.30 | 14 | ***A<B |
| Average total value received for rent per parcel per month(Mt/m2) | 7.37 | 42 | 0.00 | 43 | 6.17 | 85 | 7.08 | 71 | 0.57 | 14 | |
| Average number of years since the tenant acquired the use right over this parcel up to now | 3.6 | 41 | 5.9 | 41 | 4.0 | 82 | 4.2 | 68 | 2.6 | 14 | |
| % parcels in which the payment is in cash | 83.8% | 43 | 2.8% | 51 | 68.9% | 94 | 71.5% | 77 | 53.3% | 17 | ***A>B |
| % parcels with rental contract with the tenants | 31.1% | 42 | 14.2% | 43 | 28.4% | 85 | 25.4% | 71 | 46.7% | 14 | |
| Average total number of buildings in the parcels rented out | 1.0 | 42 | 0.7 | 45 | 0.9 | 87 | 0.9 | 73 | 1.0 | 14 | **A>B |
| % parcels renting out those buildings | 94.9% | 33 | 39.4% | 29 | 88.4% | 62 | 89.8% | 54 | 78.9% | 8 | ***A>B |
| Source: MCA/MINAG's Urban Land Survey, 2010 | | | | | | | | | | | |
| Weighted to reflect population | | | | | | | | | | | |
| (a) Significance testing (comparing A to B and C to D): * indicates significant difference at 10% level, ** at 5%, and *** at 1%. | | | | | | | | | | | |
| (b) 7 parcels did not provide information on the relationship of the tenant with the owner | | | | | | | | | | | |

Table A3.30. Information on renting- in parcels

| Item | NAMPULA CITY | | MONAPO VILA | | Total | | Male-headed | | Female-headed | | Testing (a) |
|---|--------------|------|-------------|------|----------|-------|-------------|-------|---------------|-----|-------------|
| | A | | B | | | | C | | D | | |
| | Mean | N | Mean | N | Mean | N | Mean | N | Mean | N | |
| % hhs that have parcels rented-in or borrowed from other | 18.5% | 817 | 17.7% | 873 | 17.9% | 1,690 | 17.7% | 1,263 | 18.5% | 427 | ***A>B |
| % parcels rented-in or borrowed from other | 7.7% | 1134 | 8.3% | 1020 | 7.8% | 2154 | 7.7% | 1602 | 7.9% | 552 | |
| For those that have rented out/lent to others: | | | | | | | | | | | |
| % parcels by the relationship of the owner of the parcel with the HH renting-in the parcel (b): | | | | | | | | | | | |
| Head | 0.0% | 76 | 0.0% | 68 | 0.0% | 144 | 0.0% | 108 | 0.0% | 36 | *A<B |
| Spouse | 0.0% | 76 | 5.2% | 68 | 0.7% | 144 | 1.0% | 108 | 0.0% | 36 | |
| Child | 0.0% | 76 | 0.0% | 68 | 0.0% | 144 | 0.0% | 108 | 0.0% | 36 | |
| Sibling | 3.8% | 76 | 3.1% | 68 | 3.7% | 144 | 5.2% | 108 | 0.0% | 36 | ***C<D |
| Parent | 0.3% | 76 | 1.9% | 68 | 0.5% | 144 | 0.4% | 108 | 1.0% | 36 | **A<B |
| Niece/nephew | 3.4% | 76 | 0.0% | 68 | 3.0% | 144 | 3.7% | 108 | 1.1% | 36 | |
| Grandchild | 0.0% | 76 | 0.0% | 68 | 0.0% | 144 | 0.0% | 108 | 0.0% | 36 | |
| Other relative | 24.3% | 76 | 17.7% | 68 | 23.4% | 144 | 17.8% | 108 | 37.9% | 36 | ***C<D |
| Nonrelatives | 68.1% | 76 | 72.1% | 68 | 68.7% | 144 | 72.0% | 108 | 60.1% | 36 | **C>D |
| % parcels reporting having rental contract (c) | 7.1% | 76 | 6.4% | 68 | 7.0% | 144 | 4.8% | 107 | 12.6% | 37 | |
| % parcels by people involved in the rental process | | | | | | | | | | | |
| Community leasers | 9.0% | 76 | 2.0% | 68 | 8.1% | 144 | 4.5% | 107 | 17.1% | 37 | **C<D |
| Local court | 0.0% | 76 | 0.0% | 68 | 0.0% | 144 | 0.0% | 107 | 0.0% | 37 | |
| District authority | 0.0% | 76 | 0.7% | 68 | 0.1% | 144 | 0.1% | 107 | 0.0% | 37 | |
| Lawyer | 0.0% | 76 | 0.0% | 68 | 0.0% | 144 | 0.0% | 107 | 0.0% | 37 | |
| Other | 17.3% | 76 | 3.0% | 68 | 15.3% | 144 | 20.0% | 107 | 3.5% | 37 | **C>D |
| % parcels with no involvement of an agent/institution in the renting process | 74.2% | 76 | 94.3% | 68 | 77.0% | 144 | 76.0% | 107 | 79.4% | 37 | **A<B |
| For the parcels with at least one agent involved, | | | | | | | | | | | |
| average No. of people involved in the rental of a parcel (d) | 1.02 | 20 | 1.00 | 7 | 1.02 | 27 | 1.03 | 21 | 1.00 | 6 | |
| Average total cost paid for the renting process per | | | | | | | | | | | |
| parcel (Mt) (d) | 1.14 | 20 | 0.00 | 7 | 1.10 | 27 | 0.00 | 21 | 4.40 | 6 | |
| Average monthly rent paid per parcels rented-in (Mt/month) | 826.18 | 23 | 359.62 | 10 | 788.07 | 33 | 59.89 | 24 | 2,206.05 | 9 | ***C<D |
| Average area of land currently rented-in per parcel (m2) | 4,252.41 | 23 | 3,540.26 | 10 | 4,194.25 | 33 | 3,850.63 | 24 | 4,863.36 | 9 | |

| | | | | | | | | | | | |
|---|-------|----|-------|----|-------|-----|-------|-----|-------|----|------|
| Average monthly rent paid per parcels rented-in (Mt/month/m2) | 0.12 | 23 | 0.44 | 10 | 0.15 | 33 | 0.08 | 24 | 0.29 | 9 | |
| % parcels reporting payment in cash | 17.5% | 77 | 15.3% | 69 | 17.2% | 146 | 16.5% | 109 | 19.0% | 37 | |
| Average total number of buildings in the parcels rented-in | 30.7% | 18 | 22.7% | 10 | 29.8% | 28 | 42.5% | 18 | 6.0% | 10 | *C>D |
| % parcels renting in those buildings | 30.7% | 18 | 22.7% | 10 | 29.8% | 28 | 42.5% | 18 | 6.0% | 10 | *C>D |
| Source: MCA/MINAG's Urban Land Survey, 2010 | | | | | | | | | | | |
| Weighted to reflect population | | | | | | | | | | | |
| (a) Significance testing (comparing A to B and C to D): * indicates significant difference at 10% level, ** at 5%, and *** at 1%. | | | | | | | | | | | |
| (b) 16 parcels did not reported their rental information | | | | | | | | | | | |
| (c) 133 parcels with no information on agents involved in land acquisition | | | | | | | | | | | |
| (d) 127 parcels with no information on rental rate | | | | | | | | | | | |

Table A3.31. Information on rental values (rented-in and out)

| Item | Nampula (A) | | Monapo (B) | | Total | | Male-headed (C) | | Female-headed (D) | | Testing (a) |
|--|----------------|----|---------------|----|----------|-----|--------------------|----|----------------------|----|----------------|
| | Mean | N | Mean | N | Mean | N | Mean | N | Mean | N | |
| Average monthly rent paid per parcels rented (Mt/month) (b) | 1,485.40 | 65 | 79.85 | 53 | 1,298.07 | 118 | 1,491.68 | 94 | 693.88 | 24 | |
| Average area of land currently rented per parcel (m2) | 1,880.7 | 65 | 1,723.1 | 53 | 1,859.7 | 118 | 1,880.9 | 94 | 1,793.7 | 24 | |
| Average monthly rent paid per parcels rented-in (Mt/m2) | 4.59 | 65 | 0.10 | 53 | 3.99 | 118 | 4.32 | 94 | 2.95 | 24 | |
| <u>Residence</u> | 1,793.88 | 43 | 14.75 | 39 | 1,535.09 | 82 | 1,666.59 | 66 | 1,086.27 | 16 | |
| Average total size of land currently rented (m2) | 339.0 | 43 | 808.4 | 39 | 407.2 | 82 | 432.4 | 66 | 321.4 | 16 | |
| Average area of land currently rented per parcel (m2) | 6.97 | 43 | 0.11 | 39 | 5.97 | 82 | 6.34 | 66 | 4.72 | 16 | |
| Average total value received for rent per parcel (Mt/m2) | 1,793.88 | 43 | 14.75 | 39 | 1,535.09 | 82 | 1,666.59 | 66 | 1,086.27 | 16 | |
| <u>Agriculture</u> | | | | | | | | | | | |
| Average total size of land currently rented (m2) | 909.14 | 22 | 248.10 | 14 | 836.72 | 36 | 1,129.02 | 28 | 62.09 | 8 | |
| Average area of land currently rented per parcel (m2) | 4,760.9 | 22 | 4,087.0 | 14 | 4,687.0 | 36 | 4,884.3 | 28 | 4,164.3 | 8 | |
| Average total value received for rent per parcel (Mt/m2) | 0.13 | 22 | 0.07 | 14 | 0.12 | 36 | 0.13 | 28 | 0.10 | 8 | |
| Source: MCA/MINAG's Urban Land Survey, 2010 | | | | | | | | | | | |
| Weighted to reflect population | | | | | | | | | | | |
| (a) Significance testing (comparing A to B and C to D): * indicates significant difference at 10% level, ** at 5%, and *** at 1%. | | | | | | | | | | | |
| (b) A total of 254 parcels are rented (in/out) of which 124 are used for residence and 130 for agriculture. Out of 254 parcels, 36 parcels do not have information on rental values. | | | | | | | | | | | |

Table A3.32: Rental participation in the past 5 years

| | NAMPUA CITY | | MONAPO VILA | | Total | | Male-headed | | Female-headed | | Testing (a) | |
|---|-------------|-----|-------------|-----|--------|------|-------------|------|---------------|-----|-------------|--------|
| | A | | B | | | | C | | D | | | |
| Item | Mean | N | Mean | N | Mean | N | Mean | N | Mean | N | | |
| % hhs that rented-in parcels in the last 5 years | 1.2% | 881 | 2.2% | 809 | 1.7% | 1690 | 2.0% | 1263 | 0.9% | 427 | ***A<B | ***C>D |
| Average area of land rented-in in the last 5 years per household (m2) | 533.75 | 7 | 814.63 | 4 | 578.21 | 11 | 526.88 | 9 | n/a | 0 | ***A<B | |
| % hh with rental agreement | 41.2% | 8 | 0.0% | 5 | 33.3% | 13 | 35.6% | 11 | n/a | 0 | ***A>B | |
| % hh by uses of parcels rented-in: | | | | | | | | | | | | |
| Residence | 100.0% | 8 | 45.2% | 5 | 89.6% | 13 | 94.4% | 11 | 19.1% | 2 | ***A>B | **C>D |
| Agriculture | 0.0% | 8 | 54.8% | 5 | 10.4% | 13 | 5.6% | 11 | 80.9% | 2 | | |
| Commerce | 0.0% | 8 | 0.0% | 5 | 0.0% | 13 | 0.0% | 11 | 0.0% | 2 | | |
| Time past since stopped renting (years) | 0.33 | 8 | 0.17 | 5 | 0.30 | 13 | 0.32 | 11 | 0 | 2 | | **C>D |
| % hhs by reasons why stopped renting parcels: | | | | | | | | | | | | |
| Owner needed the parcels | 11.0% | 8 | 61.2% | 5 | 20.6% | 13 | 20.7% | 11 | 19.1% | 2 | ***A<B | |
| Household did not need parcel | 79.7% | 8 | 38.8% | 5 | 71.9% | 13 | 71.3% | 11 | 80.9% | 2 | ***A<B | ***C<D |
| Other reason | 9.3% | 8 | 0.0% | 5 | 7.5% | 13 | 8.0% | 11 | 0.0% | 2 | ***A<B | ***C>D |
| Average rental rate at the time the households stopped renting (Mt) | | | | | | | | | | | | |
| | 278.43 | 7 | 119.14 | 2 | 265.59 | 9 | 266.62 | 8 | 200.00 | 1 | ***A>B | |
| Rental rate per use: | | | | | | | | | | | | |
| Residence | 278.43 | 7 | 119.14 | 2 | 265.59 | 9 | 266.62 | 8 | 200.00 | 1 | ***A>B | |
| Agriculture | n/a | 0 | n/a | 0 | n/a | 0 | n/a | 0 | n/a | 0 | | |
| Commerce | n/a | 0 | n/a | 0 | n/a | 0 | n/a | 0 | n/a | 0 | | |
| Average rental rate at the time the households stopped renting (Mt/m ²) | | | | | | | | | | | | |
| | 0.93 | 7 | 1.30 | 2 | 0.96 | 9 | 0.91 | 8 | 2.00 | 1 | ***A<B | ***C<D |
| Rental rate per use: | | | | | | | | | | | | |
| Residence | 0.93 | 7 | 1.30 | 2 | 0.96 | 9 | 0.91 | 8 | 2.00 | 1 | ***A<B | ***C<D |
| Agriculture | n/a | 0 | n/a | 0 | n/a | 0 | n/a | 0 | n/a | 0 | | |
| Commerce | n/a | 0 | n/a | 0 | n/a | 0 | n/a | 0 | n/a | 0 | | |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing (comparing A to B and C to D): * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

Table A3.33: Types of land investment made in the past 12 months

| | NAMPULA CITY | | MONAPO VILA | | Total | | Male-headed | | Female-headed | | Testing (a) |
|---|--------------|------|-------------|------|------------|-------|-------------|-------|---------------|-----|-------------------|
| | A | | B | | | | C | | D | | |
| Item | Mean | N | Mean | N | Mean | N | Mean | N | Mean | N | |
| % hh that made at least one type of investment | 25.2% | 881 | 32.4% | 809 | 26.2% | 1,690 | 27.1% | 1,263 | 23.9% | 427 | **A<B |
| % parcels that have at least one investment | 20.3% | 1134 | 25.9% | 1020 | 21.1% | 2154 | 21.8% | 1602 | 19.3% | 552 | **A<B |
| For those that made investments, % parcels by type of investment made : | | | | | | | | | | | |
| increasing the parcel size | 1.0% | 242 | 4.0% | 272 | 1.6% | 514 | 1.3% | 400 | 2.3% | 114 | **A<B |
| constructions of new buildings/houses | 26.2% | 242 | 32.7% | 272 | 27.3% | 514 | 30.8% | 400 | 16.7% | 114 | ***C>D |
| repairs, improvements, rehabilitation of buildings | 15.3% | 242 | 14.5% | 272 | 15.1% | 514 | 14.2% | 400 | 18.1% | 114 | |
| repairs, improvement, rehabilitations of roofs | 38.4% | 242 | 41.1% | 272 | 38.9% | 514 | 38.2% | 400 | 40.7% | 114 | |
| sewage, drainage, toilets | 11.2% | 242 | 17.9% | 272 | 12.4% | 514 | 11.7% | 400 | 14.5% | 114 | *A<B |
| facilities for water supply | 13.9% | 242 | 1.8% | 272 | 11.8% | 514 | 9.9% | 400 | 17.4% | 114 | ***A>B **C<D |
| Electricity | 17.3% | 242 | 16.3% | 272 | 17.1% | 514 | 18.4% | 400 | 13.2% | 114 | |
| landline service | 0.0% | 242 | 0.0% | 272 | 0.0% | 514 | 0.0% | 400 | 0.0% | 114 | |
| irrigation | 0.0% | 242 | 0.0% | 272 | 0.0% | 514 | 0.0% | 400 | 0.0% | 114 | |
| Average cost of investment per parcel by type (Mt): | | | | | | | | | | | |
| increasing the parcel size | n/a | 0 | n/a | 0 | n/a | 0 | n/a | 0 | n/a | 0 | |
| constructions of new buildings/houses | 605,422.80 | 20 | 99,413.69 | 37 | 481,438.70 | 57 | 373,697.10 | 49 | 1,649,603.00 | 8 | *C<D |
| repairs, improvements and rehabilitation of buildings | 104,670.40 | 15 | 17,943.53 | 15 | 90,347.32 | 30 | 104,661.60 | 25 | 22,488.56 | 5 | |
| repairs, improvement and rehabilitations of roofs on the buildings | 3,630.97 | 52 | 24,442.18 | 56 | 6,836.99 | 108 | 7,988.32 | 78 | 3,362.96 | 30 | |
| sewage, drainage, toilets | 1,083.20 | 13 | 159.08 | 23 | 874.57 | 36 | 711.73 | 28 | 1,150.48 | 8 | *A>B |
| facilities for water supply | 78,148.27 | 7 | 89.86 | 2 | 76,014.05 | 9 | 92,443.15 | 8 | 3,500.00 | 1 | |
| Electricity | 1,513.11 | 7 | 29,797.06 | 9 | 7,548.93 | 16 | 8,876.11 | 15 | 11.00 | 1 | |
| Average total cost of investment per parcel (Mt) | | | | | | | | | | | |
| | 68,733.38 | 242 | 21,419.43 | 272 | 60,370.58 | 514 | 59,797.05 | 400 | 62,117.30 | 114 | |
| Total Average investment cost per parcel per m2 (Mt) | | | | | | | | | | | |
| | 310.09 | 240 | 102.74 | 272 | 273.31 | 512 | 277.62 | 398 | 260.27 | 114 | |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing (comparing A to B and C to D): * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

n/a – not applicable

(b) one large investment on control of 7,200,000Mt

(c) 2 parcels without area size

Table A3.34. Percentage households by their opinion on the effect of DUAT on the value of parcel

| Table 10.1: Percentage Households by their opinion on the effect of DCA on the value of parcel | | | | | | | | | | | |
|--|--------------|-----|-------------|-----|--------|-------|-------------|-------|---------------|-----|-------------|
| Item | NAMPULA CITY | | MONAPO VILA | | Total | | Male-headed | | Female-headed | | Testing (a) |
| | A | | B | | | | C | | D | | |
| | Mean | N | Mean | N | Mean | N | Mean | N | Mean | N | |
| Increase | 94.5% | 827 | 92.0% | 728 | 94.1% | 1,690 | 93.9% | 1,264 | 94.7% | 426 | ***A>B |
| Decrease | 2.0% | 20 | 2.0% | 17 | 2.0% | 1,690 | 2.0% | 1,264 | 2.2% | 426 | |
| Do not affect | 2.2% | 19 | 2.8% | 28 | 2.3% | 1,690 | 2.6% | 1,264 | 1.5% | 426 | *A<B |
| Do not know | 1.3% | 15 | 3.2% | 36 | 1.6% | 1,690 | 1.5% | 1,264 | 1.7% | 426 | ***A<B |
| Total | 100.0% | 881 | 100.0% | 809 | 100.0% | 1,690 | 100.0% | 1,264 | 100.0% | 426 | |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing (comparing A to B and C to D): * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

If not noted, no significant was found differences

Table A3.35. Percentage of households by their willingness to pay, willingness to sell and rent out in the case of DUAT

| Case of DUAT | | | | | | | | | | | | Testing (a) |
|---|--------------|-----|-------------|-----|-------|-------|-------------|-------|---------------|-----|--------|-------------|
| Item | NAMPULA CITY | | MONAPO VILA | | Total | | Male-headed | | Female-headed | | | |
| | A | | B | | | | C | | D | | | |
| Item | Mean | N | Mean | N | Mean | N | Mean | N | Mean | N | | |
| % hh willing to pay more, less or same for parcel with DUAT than that without DUAT: | | | | | | | | | | | | |
| More | 34.8 | 881 | 38.3 | 809 | 35.3 | 1,690 | 34.8 | 1,264 | 36.6 | 426 | ***A>B | |
| Less | 57.7 | 881 | 52.1 | 809 | 56.9 | 1,690 | 56.9 | 1,264 | 56.7 | 426 | | |
| Same | 3.8 | 881 | 4.7 | 809 | 3.9 | 1,690 | 4.5 | 1,264 | 2.5 | 426 | | |
| DNK | 3.8 | 881 | 4.9 | 809 | 3.9 | 1,690 | 3.8 | 1,264 | 4.2 | 426 | | |
| Total | 100.0 | 881 | 100.0 | 809 | 100.0 | 1,690 | 100.0 | 1,264 | 100.0 | 426 | | |
| % hh more willing to sell property in the case of DUAT: | | | | | | | | | | | | |
| Yes | 32.7 | 881 | 44.2 | 809 | 34.3 | 1,690 | 34.0 | 1,264 | 35.4 | 426 | ***A<B | |
| No | 58.4 | 881 | 46.8 | 809 | 56.8 | 1,690 | 57.3 | 1,264 | 55.3 | 426 | ***A>B | |
| DNK | 8.9 | 881 | 9.0 | 809 | 8.9 | 1,690 | 8.7 | 1,264 | 9.3 | 426 | | |
| Total | 100.0 | 881 | 100.0 | 809 | 100.0 | 1,690 | 100.0 | 1,264 | 100.0 | 426 | | |
| % hh more willing to rent out property in the case of DUAT: | | | | | | | | | | | | |
| Yes | 48.4 | 881 | 59.0 | 809 | 49.9 | 1,690 | 49.1 | 1,264 | 51.9 | 426 | ***A<B | |
| No | 43.0 | 881 | 34.4 | 809 | 41.8 | 1,690 | 42.0 | 1,264 | 41.4 | 426 | ***A>B | |
| DNK | 8.6 | 881 | 6.6 | 809 | 8.3 | 1,690 | 8.9 | 1,264 | 6.7 | 426 | | |
| Total | 100.0 | 881 | 100.0 | 809 | 100.0 | 1,690 | 100.0 | 1,264 | 100.0 | 426 | | |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing (comparing A to B and C to D): * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

If not noted, no significant was found differences

Table A3.36. Households' opinion about the effect of DUAT on conflicts and expropriation

| Table A0.06: Households' opinion about the effect of DUAT on conflicts and expropriation | | | | | | | | | | | |
|--|--------------|-----|-------------|-----|-------|-------|-------------|-------|---------------|-----|-----------------|
| Item | NAMPULA CITY | | MONAPO VILA | | Total | | Male-headed | | Female-headed | | Testing (a) |
| | A | | B | | | | C | | D | | |
| | Mean | N | Mean | N | Mean | N | Mean | N | Mean | N | |
| % hh believing that demarcation/DUAT will make disputes more or less likely to occur | | | | | | | | | | | |
| More likely | 19.1 | 880 | 32.0 | 808 | 20.9 | 1688 | 20.9 | 1262 | 21.1 | 426 | ***A<B |
| Somewhat likely | 15.5 | 880 | 17.9 | 808 | 15.9 | 1688 | 17.0 | 1262 | 12.9 | 426 | |
| Somewhat unlikely | 20.1 | 880 | 16.1 | 808 | 19.6 | 1688 | 18.6 | 1262 | 22.1 | 426 | |
| More unlikely | 40.2 | 880 | 29.9 | 808 | 38.8 | 1688 | 38.9 | 1262 | 38.4 | 426 | ***A>B |
| DNK | 5.0 | 880 | 4.1 | 808 | 4.8 | 1688 | 4.6 | 1262 | 5.5 | 426 | *C<D |
| Total | 100.0 | 880 | 100.0 | 808 | 100.0 | 1,688 | 100.0 | 1,262 | 100.0 | 426 | |
| % hh believing that demarcation/DUAT will make disputes more or less likely to be resolved | | | | | | | | | | | |
| More likely | 54.0 | 881 | 55.1 | 808 | 54.2 | 1689 | 53.6 | 1263 | 55.7 | 426 | |
| Somewhat likely | 25.8 | 881 | 21.6 | 808 | 25.2 | 1689 | 25.4 | 1263 | 24.5 | 426 | **A>B |
| Somewhat unlikely | 7.9 | 881 | 7.7 | 808 | 7.8 | 1689 | 7.7 | 1263 | 8.1 | 426 | |
| More unlikely | 7.6 | 881 | 11.1 | 808 | 8.1 | 1689 | 8.2 | 1263 | 7.9 | 426 | *A<B |
| DNK | 4.8 | 881 | 4.5 | 808 | 4.8 | 1689 | 5.1 | 1263 | 3.9 | 426 | |
| Total | 100.0 | 881 | 100.0 | 808 | 100.0 | 1,689 | 100.0 | 1,263 | 100.0 | 426 | |
| HHs' opinion about DUAT reducing the risk of expropriation of land: % hhs | | | | | | | | | | | |
| Yes | 93.6 | 881 | 93.9 | 808 | 93.6 | 1689 | 94.4 | 1263 | 91.6 | 426 | **A>B |
| No | 1.9 | 881 | 2.1 | 808 | 1.9 | 1689 | 1.3 | 1263 | 3.7 | 426 | |
| DNK | 4.5 | 881 | 4.0 | 808 | 4.5 | 1689 | 4.3 | 1263 | 4.8 | 426 | |
| Total | 100.0 | 881 | 100.0 | 808 | 100.0 | 1,689 | 100.0 | 1,263 | 100.0 | 426 | |
| HHs' opinion about DUAT making the expropriation of land more transparent: % hhs | | | | | | | | | | | |
| Yes | 92.4 | 881 | 95.4 | 808 | 92.8 | 1689 | 93.0 | 1263 | 92.2 | 426 | |
| No | 3.0 | 881 | 1.5 | 808 | 2.8 | 1689 | 2.4 | 1263 | 3.8 | 426 | **A<B **C>D |
| DNK | 4.6 | 881 | 3.1 | 808 | 4.4 | 1689 | 4.5 | 1263 | 4.0 | 426 | ***A<B **C>D |
| Total | 100.0 | 881 | 100.0 | 808 | 100.0 | 1,689 | 100.0 | 1,263 | 100.0 | 426 | |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing (comparing A to B and C to D): * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

If not noted, no significant was found differences

Table A3.37. Households' opinion about the effect of DUAT on investment and collateralization

| | NAMPULA CITY | | MONAPO VILA | | Total | | Male-headed | | Female-headed | | Testing (a) | |
|--|--------------|-----|-------------|-----|-------|-------|-------------|-------|---------------|-----|--------------------|--|
| | A | | B | | | | C | | D | | | |
| Item | Mean | N | Mean | N | Mean | N | Mean | N | Mean | N | | |
| hhs' opinion about making improvement or investments on their properties in the case of DUAT: % hhs | | | | | | | | | | | | |
| More likely | 64.7 | 881 | 68.2 | 808 | 65.2 | 1689 | 64.2 | 1263 | 68.0 | 426 | *A<B | |
| Somewhat likely | 21.3 | 881 | 20.5 | 808 | 21.2 | 1689 | 22.4 | 1263 | 17.9 | 426 | *A>B | |
| Somewhat unlikely | 4.5 | 881 | 3.2 | 808 | 4.3 | 1689 | 4.3 | 1263 | 4.5 | 426 | **A>B | |
| More unlikely | 2.5 | 881 | 1.3 | 808 | 2.4 | 1689 | 2.7 | 1263 | 1.6 | 426 | *A>B | |
| DNK | 7.0 | 881 | 6.8 | 808 | 6.9 | 1689 | 6.5 | 1263 | 8.1 | 426 | **A<B | |
| Total | 100.0 | 881 | 100.0 | 808 | 100.0 | 1,689 | 100.0 | 1,263 | 100.0 | 426 | | |
| hhs' opinion about using their parcels as collateral to obtain credit in the case of DUAT: % hhs | | | | | | | | | | | | |
| More likely | 26.9 | 877 | 39.4 | 808 | 28.6 | 1685 | 29.6 | 1260 | 26.3 | 425 | ***A<B | |
| Somewhat likely | 18.7 | 877 | 21.9 | 808 | 19.2 | 1685 | 19.0 | 1260 | 19.6 | 425 | | |
| Somewhat unlikely | 19.6 | 877 | 16.2 | 808 | 19.1 | 1685 | 20.5 | 1260 | 15.4 | 425 | ***A>B | |
| More unlikely | 18.5 | 877 | 7.3 | 808 | 16.9 | 1685 | 15.1 | 1260 | 21.6 | 425 | ***A>B ***C<D | |
| DNK | 16.4 | 877 | 15.2 | 808 | 16.2 | 285 | 15.9 | 1260 | 17.2 | 425 | | |
| Total | 100.0 | 877 | 100.0 | 808 | 100.0 | 1,685 | 100.0 | 1,260 | 100.0 | 425 | | |
| % hh by purposes to which they would use the credit for if the hh is able to use land as collateral | | | | | | | | | | | | |
| Agriculture | 25.2 | 404 | 47.7 | 483 | 29.3 | 887 | 30.2 | 679 | 26.7 | 208 | ***A<B *C>D | |
| Make improvements/expand property | | 404 | | 483 | | 887 | | 679 | | 208 | | |
| | 20.4 | | 13.1 | | 19.1 | | 19.8 | | 17.2 | | *A>B | |
| Business | 54.4 | 404 | 39.2 | 483 | 51.7 | 887 | 50.0 | 679 | 56.2 | 208 | | |
| Total | 100.0 | 404 | 100.0 | 483 | 100.0 | 887 | 100.0 | 679 | 100.0 | 208 | | |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing (comparing A to B and C to D): * indicates significant difference at 10% level, ** at 5%, and *** at 1%..

Table A3.38. Knowledge about women's rights under the land law of 1997

| Table A3.38: Knowledge about women's rights under the land law of 1997 | | | | | | | | | | | | |
|---|--------------|-----|-------------|-----|-------|-------|-------------|-------|---------------|-----|-------------|------|
| | NAMPULA CITY | | MONAPO VILA | | Total | | Male-headed | | Female-headed | | Testing (a) | |
| | A | | B | | | | C | | D | | | |
| Item | Mean | N | Mean | N | Mean | N | Mean | N | Mean | N | | |
| % hhs reporting that women have the right to inherit land on equal basis as their brothers | | | | | | | | | | | | |
| Yes | 81.6 | 881 | 74.4 | 808 | 80.6 | 1689 | 79.8 | 1263 | 82.6 | 426 | ***A>B | *C<D |
| No | 13.8 | 881 | 22.2 | 808 | 15.0 | 1689 | 15.6 | 1263 | 13.5 | 426 | ***A<B | *C>D |
| DNK | 4.6 | 881 | 3.5 | 808 | 4.4 | 1689 | 4.6 | 1263 | 3.9 | 426 | **A<B | |
| Total | 100.0 | 881 | 100.0 | 808 | 100.0 | 1,689 | 100.0 | 1,263 | 100.0 | 426 | | |
| % hhs reporting that women have the right to maintain a piece of their ex-husband's land in case of divorce | | | | | | | | | | | | |
| Yes | 81.6 | 881 | 74.4 | 808 | 80.6 | 1689 | 79.8 | 1263 | 82.6 | 426 | ***A>B | |
| No | 13.8 | 881 | 22.2 | 808 | 15.0 | 1689 | 15.6 | 1263 | 13.5 | 426 | ***A<B | |
| DNK | 4.6 | 881 | 3.5 | 808 | 4.4 | 1689 | 4.6 | 1263 | 3.9 | 426 | | |
| Total | 100.0 | 881 | 100.0 | 808 | 100.0 | 1,689 | 100.0 | 1,263 | 100.0 | 426 | | |
| % hhs reporting that women have the right to apply for a formal land title | | | | | | | | | | | | |
| Yes | 89.3 | 881 | 85.3 | 808 | 88.8 | 1689 | 87.7 | 1263 | 91.6 | 426 | ***A>B | |
| No | 7.0 | 881 | 10.9 | 808 | 7.6 | 1689 | 8.4 | 1263 | 5.3 | 426 | ***A<B | |
| DNK | 3.7 | 881 | 3.8 | 808 | 3.7 | 1689 | 3.9 | 1263 | 3.1 | 426 | **A<B | |
| Total | 100.0 | 881 | 100.0 | 808 | 100.0 | 1,689 | 100.0 | 1,263 | 100.0 | 426 | | |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing (comparing A to B and C to D): * indicates significant difference at 10% level, ** at 5%, and *** at 1%..

Table A3.39. Perceptions about the land law of 1997

| Item | NAMPULA CITY (A) | | MONAPO VILA (B) | | Total | | Male-headed (C) | | Female-headed (D) | | Testing (a) |
|---|------------------|-----|-----------------|-----|-------|-------|-----------------|-------|-------------------|------|---------------|
| | Mean | N | Mean | N | Mean | N | N | Mean | N | Mean | |
| % hh informed about the 1997's land law | 13% | 881 | 14% | 808 | 13% | 1,689 | 13% | 1,262 | 12% | 426 | *C>D |
| If informed, how much the hh knows about the land law | | | | | | | | | | | |
| None | 6.8 | 119 | 16.1 | 120 | 8.2 | 239 | 9.0 | 188 | 5.6 | 51 | **A<B |
| A little | 78.5 | 119 | 60.8 | 120 | 75.9 | 239 | 76.9 | 188 | 72.8 | 51 | |
| A fair amount | 10.7 | 119 | 16.8 | 120 | 11.6 | 239 | 11.3 | 188 | 12.4 | 51 | |
| A lot | 4.0 | 119 | 6.4 | 120 | 4.4 | 239 | 2.7 | 188 | 9.3 | 51 | |
| Total | 100.0 | 119 | 100.0 | 120 | 100.0 | 239 | 100.0 | 188 | 100.0 | 51 | |
| If informed, % hhs by the means that they received information of land law | | | | | | | | | | | |
| Local leaders | 19.8 | 119 | 33.2 | 120 | 21.8 | 239 | 19.2 | 188 | 29.6 | 51 | |
| Dissemination by authorities | 35.2 | 119 | 36.1 | 120 | 35.3 | 239 | 36.6 | 188 | 31.5 | 51 | |
| Others | 45.1 | 119 | 30.6 | 120 | 42.9 | 239 | 44.3 | 188 | 38.9 | 51 | |
| Total | 100.0 | 119 | 100.0 | 120 | 100.0 | 239 | 100.0 | 188 | 100.0 | 51 | |
| If informed, % hhs that received information about the land law of 1997 | 7.2% | 119 | 14.1% | 120 | 8.3% | 239 | 8.8% | 188 | 6.6% | 51 | **C>D |
| If informed, % hhs that knows specific rights of the land law of 1997 | 54.3% | 119 | 47.3% | 120 | 53.3% | 239 | 46.9% | 188 | 72.6% | 51 | |
| The opinions of informed HH's about how the land law strengthens land tenure: % hhs | | | | | | | | | | | |
| Very useful | 71.2 | 119 | 68.8 | 120 | 70.8 | 239 | 69.6 | 188 | 74.5 | 38 | |
| Somewhat useful | 23.7 | 119 | 15.3 | 120 | 22.4 | 239 | 23.5 | 188 | 19.3 | 51 | *A>B |
| Useless | 0.4 | 119 | 0.6 | 120 | 0.5 | 239 | 0.6 | 188 | 0.0 | 51 | *C>D |
| Cannot say | 4.8 | 119 | 15.3 | 120 | 6.3 | 239 | 6.4 | 188 | 6.2 | 51 | **A>B |
| Total | 100.0 | 119 | 100.0 | 120 | 100.0 | 239 | 100.0 | 188 | 100.0 | 51 | |
| % of the informed hhs that think that in accordance with the land law of 1997 have right to sell or buy land | | | | | | | | | | | |
| Yes | 6.2 | 119 | 11.2 | 17 | 6.9 | 240 | 9.2 | 189 | 0.3 | 51 | ***A<B ***C>D |
| No | 51.0 | 119 | 56.5 | 62 | 51.8 | 240 | 51.9 | 189 | 51.7 | 51 | |
| DNK | 42.8 | 119 | 32.4 | 42 | 41.2 | 240 | 39.0 | 189 | 48.0 | 51 | **A>B ***C<D |
| Total | 100.0 | 119 | 100.0 | 121 | 100.0 | 240 | 100.0 | 189 | 100.0 | 51 | |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing (comparing (A), (B) and (C), (D): * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

Table A3.40. Value of household food consumption per month (Mt)

| Item | NAMPULA CITY | | | | Total | | Male-headed | | Female-headed | | Testing (a) |
|---|--------------|-----|----------|-----|----------|------|-------------|------|---------------|-----|-------------|
| | A | | B | | | | C | | D | | |
| | Mean | N | Mean | N | Mean | N | Mean | N | Mean | N | |
| Basic food (cereals, roots and tubers) | 1,358.68 | 881 | 732.26 | 809 | 1,270.69 | 1690 | 1,272.12 | 1263 | 1,266.00 | 427 | ***A>B |
| Legumes/vegetables | 571.28 | 881 | 322.87 | 809 | 536.39 | 1690 | 533.16 | 1263 | 547.02 | 427 | ***A>B |
| Fruits and Nuts | 197.65 | 881 | 136.25 | 809 | 189.03 | 1690 | 189.80 | 1263 | 186.47 | 427 | ***A>B |
| Meats and animal products (including fish) | 1,233.17 | 881 | 748.91 | 809 | 1,165.15 | 1690 | 1,141.51 | 1263 | 1,242.78 | 427 | ***A>B |
| Other foods (sugar, condiments, beverages, vegetable oil) | 787.02 | 881 | 432.75 | 809 | 737.26 | 1690 | 746.50 | 1263 | 706.91 | 427 | ***A>B |
| Meals and beverages in restaurants | 48.75 | 881 | 9.93 | 809 | 43.30 | 1690 | 31.79 | 1263 | 81.09 | 427 | **A>B |
| Value of total food consumption (Mt) | 4,196.55 | 881 | 2,382.98 | 809 | 3,941.83 | 1690 | 3,914.89 | 1263 | 4,030.27 | 427 | ***A>B |
| Value of total food consumption (USD) | 152.55 | 881 | 86.62 | 809 | 143.29 | 1690 | 142.31 | 1263 | 146.50 | 427 | ***A>B |
| Value of total food consumption per capita per day (Mt) | 29.37 | 881 | 19.33 | 809 | 27.96 | 1690 | 27.89 | 1263 | 28.20 | 427 | ***A>B |
| Value of total food consumption per capita per day (USD) | 1.07 | 881 | 0.70 | 809 | 1.02 | 1690 | 1.01 | 1263 | 1.02 | 427 | ***A>B |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing (comparing A to B and C to D): * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

TableA3. 41. Household Dietary Diversity by location and gender of the household head

| Food group | NAMPULA | | MONAPO | | Total | | Male-headed | | Female-headed | | Testing (a) | |
|---------------------------------------|---------|-----|--------|-----|-------|-------|-------------|-------|---------------|-----|-------------|-------|
| | CITY | | VILA | | | | | | | | | |
| | A | | B | | | | C | | D | | | |
| | Mean | N | Mean | N | Mean | N | Mean | N | Mean | N | | |
| Staple cereals | 95.9% | 881 | 91.5% | 809 | 94.0% | 1,690 | 94.0% | 1,263 | 94.0% | 427 | **A>B | *C<D |
| Tubers | 87.7% | 881 | 78.1% | 809 | 83.5% | 1,690 | 83.0% | 1,263 | 84.8% | 427 | ***A>B | |
| Meat | 31.1% | 881 | 28.5% | 809 | 30.0% | 1,690 | 31.5% | 1,263 | 26.0% | 427 | *A>B | |
| Eggs | 22.2% | 881 | 18.3% | 809 | 20.5% | 1,690 | 20.3% | 1,263 | 21.1% | 427 | *A>B | **C<D |
| Fish and shellfish or other seed food | 93.7% | 881 | 93.9% | 809 | 93.8% | 1,690 | 94.1% | 1,263 | 92.9% | 427 | **A<B | |
| Legumes | 91.2% | 881 | 83.9% | 809 | 88.1% | 1,690 | 90.1% | 1,263 | 82.8% | 427 | | *C>D |
| Vegetables | 94.4% | 881 | 95.4% | 809 | 94.8% | 1,690 | 95.2% | 1,263 | 93.8% | 427 | ***A>B | |
| Fruit | 91.9% | 881 | 82.4% | 809 | 87.8% | 1,690 | 88.0% | 1,263 | 87.1% | 427 | ***A>B | |
| Milk and milk products | 18.4% | 881 | 14.2% | 809 | 16.6% | 1,690 | 17.2% | 1,263 | 15.0% | 427 | **A>B | |
| Oil and oil seeds | 95.5% | 881 | 92.1% | 809 | 94.0% | 1,690 | 94.5% | 1,263 | 92.9% | 427 | **A>B | |
| Sugar | 90.7% | 881 | 83.9% | 809 | 87.8% | 1,690 | 88.1% | 1,263 | 86.8% | 427 | **A>B | |
| Miscellaneous | 98.8% | 881 | 98.3% | 809 | 98.6% | 1,690 | 98.3% | 1,263 | 99.4% | 427 | | *C>D |
| Household Dietary Diversity (HDDS) | 9.12 | 881 | 8.61 | 807 | 8.90 | 1688 | 8.95 | 1262 | 8.77 | 426 | ***A>B | |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing (comparing A to B and C to D): * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

Table A3.42. Value of monthly household consumption (Mt)

| Item | NAMPULA CITY | | MONAPO VILA | | Total | | Male-headed | | Female-headed | | Testing (a) |
|---|--------------|-----|-------------|-----|----------|-------|-------------|------|---------------|-----|-------------|
| | A | | B | | | | C | | D | | |
| | Mean | N | Mean | N | Mean | N | Mean | N | Mean | N | |
| Basic food | 1,358.68 | 881 | 732.26 | 809 | 1,270.69 | 1690 | 1,272.12 | 1263 | 1,266.00 | 427 | ***A>B |
| Legumes/vegetables | 571.28 | 881 | 322.87 | 809 | 536.39 | 1690 | 533.16 | 1263 | 547.02 | 427 | ***A>B |
| Fruits and Nuts | 197.65 | 881 | 136.25 | 809 | 189.03 | 1690 | 189.80 | 1263 | 186.47 | 427 | ***A>B |
| Meats and sub-products | 1,233.17 | 881 | 748.91 | 809 | 1,165.15 | 1690 | 1,141.51 | 1263 | 1,242.78 | 427 | ***A>B |
| Others | 787.02 | 881 | 432.75 | 809 | 737.26 | 1690 | 746.50 | 1263 | 706.91 | 427 | ***A>B |
| Meals and beverages in restaurants | 48.75 | 881 | 9.93 | 809 | 43.30 | 1690 | 31.79 | 1263 | 81.09 | 427 | **A>B |
| Total food consumption (Mt) | 4,196.55 | 881 | 2,382.98 | 809 | 3,941.83 | 1690 | 3,914.89 | 1263 | 4,030.27 | 427 | ***A>B |
| Total food consumption (USD) | 152.55 | 881 | 86.62 | 809 | 143.29 | 1690 | 142.31 | 1263 | 146.50 | 427 | ***A>B |
| Total food consumption per capita per day (Mt) | 29.37 | 881 | 19.33 | 809 | 27.96 | 1690 | 27.89 | 1263 | 28.20 | 427 | ***A>B |
| Total food consumption per capita per day (USD) | 1.07 | 881 | 0.70 | 809 | 1.02 | 1690 | 1.01 | 1263 | 1.02 | 427 | ***A>B |
| Household Dietary Diversity Score (HDDS) | 9.12 | 881 | 8.61 | 807 | 8.90 | 1,688 | 8.95 | 1261 | 8.77 | 427 | ***A>B |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Significance testing (comparing A to B and C to D): * indicates significant difference at 10% level, ** at 5%, and *** at 1%.

Table A3.43. Percent of individuals living on less than \$1.25 per day (based on PPP exchange rate) and less than 16.7 Mt per day (based on the local poverty line)

| | NAMPULA CITY | | MONAPO VILA | | Total | | Male-headed | | Female-headed | | Testing (a) | |
|--|--------------|---------|-------------|--------|-------|---------|-------------|---------|---------------|--------|-------------|--|
| | A | | B | | | | C | | D | | | |
| Item | Mean | N | Mean | N | Mean | N | Mean | N | Mean | N | | |
| Average per capita expenditures per day (USD PPP) | 1.70 | 148,007 | 1.41 | 22,419 | 1.66 | 170,427 | 1.56 | 131,785 | 1.73 | 38,641 | | |
| % individuals in poverty based on global measure (i.e., <\$1.25/day) | 30.0% | 148,007 | 47.1% | 22,419 | 32.2% | 170,427 | 32.5% | 131,785 | 31.4% | 38,641 | ***A<B | |
| Average per capita expenditures per day (Meticas) | 46.86 | 148,007 | 38.81 | 22,419 | 45.73 | 170,427 | 42.95 | 131,785 | 47.56 | 38,641 | **A>B *C<D | |
| % individuals in poverty based on national poverty line (i.e., <16.7 Mt/day) (b) | 39.3% | 148,007 | 53.4% | 22,419 | 41.2% | 170,427 | 41.4% | 131,785 | 40.3% | 38,641 | ***A<B | |
| Actual number of people per group | 5,052 | | 4,296 | | 9,348 | | 7,062 | | 2,286 | | ***C>D | |
| Source: MCA/MINAG's Urban Land Survey, 2010 | | | | | | | | | | | | |
| Weighted to reflect population | | | | | | | | | | | | |
| (a) Significance testing comparing (A) and (B), (C) and (D): * indicates significant difference at 10% level, ** at 5%, and *** at 1%. | | | | | | | | | | | | |
| (b) Using the urban poverty line for Nampula (16.7 Mt/day/person) from MPD (2010) | | | | | | | | | | | | |

Annex 4: Key results presented by treatment and control groups in each of the two urban areas

Note: Table numbers (after A4) correspond to the Tables presenting similar results by treatment and control areas in the main body of the report.

Table A4.9. Demographic characteristics

| Item | Nampula city Treatment | | Nampula city Control | | Monapo vila Treatment | | Monapo vila Control | |
|--|---------------------------|-----|-------------------------|-------|--------------------------|-----|------------------------|--------|
| | Mean | N | Mean | N | Mean | N | Mean | N |
| % hh headed by women | 27.9% | 596 | 28.7% | 285 | 20.9% | 438 | 24.0% | 371 |
| Age of the household head (years) | 41.5 | 596 | 40.0 | **284 | 40.2 | 438 | 41.8 | 371 |
| Education of the head: | | | | | | | | |
| Know to read and write | 78.7% | 596 | 79.6% | 284 | 66.4% | 438 | 59.8% | **371 |
| Currently enrolled | 12.6% | 596 | 9.1% | 285 | 9.0% | 438 | 5.4% | 371 |
| Have ever been to school | 71.9% | 596 | 78.1% | 285 | 71.6% | 438 | 68.7% | 371 |
| Household size: | | | | | | | | |
| Total number of members | 5.8 | 596 | 5.6 | *285 | 5.3 | 438 | 5.1 | 371 |
| Total Adult Equivalent(a) | 4.4 | 596 | 4.3 | 285 | 3.9 | 438 | 3.8 | 371 |
| Women as percentage of all adults, 15 years of age or older | 52.5% | 594 | 48.5% | 285 | 49.3% | 438 | 54.6% | ***371 |
| Household composition: average number of members per age group | | | | | | | | |
| Infant (<5 years) | 1.0 | 596 | 1.0 | 285 | 1.0 | 438 | 1.0 | 371 |
| Child (5-15 years) | 1.7 | 596 | 1.7 | 285 | 1.7 | 438 | 1.6 | *371 |
| Adult (15-45 years) | 2.5 | 596 | 2.5 | 285 | 2.1 | 438 | 2.0 | 371 |
| Adult (45-60 years) | 0.4 | 596 | 0.3 | *285 | 0.4 | 438 | 0.4 | **371 |
| Older (> 60 years) | 0.1 | 596 | 0.1 | 285 | 0.1 | 438 | 0.2 | 371 |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

(a) Factors drawn from Deaton (1997), used by Boughton et al. (2006) and Mather and Donovan (2009) for Mozambique.

Note: Significance testing compares the means treatment and control groups within a given municipality. * indicates significant difference at 10% level, ** at 5%, and *** at 1%. If not noted no significant differences were found

Table A4.10. Percentage of households reporting income from different sources and type of economic activity

| Item | Nampula city Treatment | | Nampula city Control | | Monapo vila Treatment | | Monapo vila Control | |
|---|---------------------------|-----|-------------------------|--------|--------------------------|-----|------------------------|--------|
| | Mean | N | Mean | N | Mean | N | Mean | N |
| Remittances and pensions: | | | | | | | | |
| % hh received pension | 6.8% | 596 | 5.3% | 285 | 4.1% | 438 | 2.5% | *371 |
| % hh received remittances | 23.6% | 596 | 18.6% | 285 | 30.2% | 438 | 22.0% | 371 |
| % of households engaged in agricultural activities: | | | | | | | | |
| Crop | 82.1% | 596 | 71.1% | 285 | 92.8% | 438 | 94.5% | 371 |
| Livestock | 25.4% | 596 | 18.7% | ***285 | 35.5% | 438 | 34.4% | 371 |
| Salaried employment: % hh with members working as | | | | | | | | |
| Agricultural laborer | 15.2% | 596 | 7.1% | 285 | 3.3% | 438 | 1.5% | ***371 |
| Migrant worker | 0.0% | 596 | 0.3% | ***285 | 0.0% | 438 | 1.1% | *371 |
| Teacher, health service | 9.0% | 596 | 13.4% | 285 | 10.5% | 438 | 13.8% | 371 |
| Mechanic, construction, factory worker | 8.9% | 596 | 7.5% | 285 | 9.7% | 438 | 11.1% | 371 |
| Manager, accountant, secretary | 1.8% | 596 | 4.2% | 285 | 3.2% | 438 | 5.6% | 371 |
| Domestic worker | 2.2% | 596 | 4.2% | **285 | 3.3% | 438 | 6.2% | **371 |
| Sales person, service industry | 0.3% | 596 | 1.2% | 285 | 0.3% | 438 | 0.3% | 371 |
| Other salaried employee | 27.5% | 596 | 16.9% | **285 | 24.5% | 438 | 29.2% | 371 |
| Self-employment: Forest and Fauna products | | | | | | | | |
| Cut/collect firewood | 18.2% | 596 | 9.1% | ***285 | 50.3% | 438 | 56.1% | 371 |
| Charcoal production | 1.2% | 596 | 0.0% | ***285 | 0.8% | 438 | 1.8% | 371 |
| Cut grass, cane, palm tree leaves | 4.2% | 596 | 3.9% | 285 | 24.0% | 438 | 25.7% | 371 |
| Cut branches | 1.2% | 596 | 1.1% | 285 | 9.1% | 438 | 6.1% | **371 |
| Collect honey, bush plants and fruits, eggs of wild animals | 0.1% | 596 | 0.0% | 285 | 0.4% | 438 | 0.1% | 371 |
| Hunting | 0.0% | 596 | 0.4% | **285 | 0.5% | 438 | 0.5% | 371 |
| Fishing | 0.2% | 596 | 0.4% | 285 | 3.3% | 438 | 0.8% | ***371 |
| Wood production | 0.6% | 596 | 0.0% | ***285 | 0.1% | 438 | 0.5% | 371 |
| Catching birds and reptiles | 0.0% | 596 | 0.6% | ***285 | 0.5% | 438 | 0.6% | 371 |
| Unreported | | | | | | | | |
| Other self-employment activities: | | | | | | | | |
| Production of home-made beverages | 4.3% | 596 | 6.7% | 285 | 4.3% | 438 | 4.0% | 371 |
| Purchase and sale of beverages | 3.2% | 596 | 4.0% | 285 | 2.5% | 438 | 2.5% | 371 |
| Purchase and sale of food products | 24.6% | 596 | 21.5% | 285 | 17.6% | 438 | 9.9% | ***371 |
| Purchase and sale of all commercial goods | 2.8% | 596 | 2.9% | 285 | 4.9% | 438 | 2.4% | **371 |
| Purchase and sale of fish | 6.5% | 596 | 4.7% | **285 | 8.1% | 438 | 3.9% | *371 |
| Purchase and sale of small size livestock and its by-product | 1.0% | 596 | 0.6% | 285 | 1.3% | 438 | 0.8% | 371 |
| Purchase and sale of medium size livestock and its by-product | 5.1% | 596 | 2.1% | 285 | 2.8% | 438 | 3.3% | 371 |
| Purchase and sale of large size livestock and its by-product | 1.1% | 596 | 0.0% | 285 | 0.5% | 438 | 0.3% | 371 |
| Handcrafts/masonry/carpentry | 2.5% | 596 | 1.9% | 285 | 1.3% | 438 | 2.7% | 371 |
| Tailoring/dressmaking | 0.7% | 596 | 2.2% | **285 | 1.9% | 438 | 2.8% | **371 |
| Radio/bike repair | 0.8% | 596 | 0.2% | 285 | 1.5% | 438 | 1.0% | 371 |
| Bricks production, smiting, bricklaying | 1.5% | 596 | 2.9% | 285 | 1.3% | 438 | 1.2% | 371 |
| Milling or agro-processing | 0.5% | 596 | 0.0% | *285 | 0.3% | 438 | 0.2% | 371 |
| Other activity | 7.0% | 596 | 6.4% | 285 | 6.0% | 438 | 6.5% | 371 |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

Note: Significance testing compares the means treatment and control groups within a given municipality. * indicates significant difference at 10% level, ** at 5%, and *** at 1%. If not noted no significant differences were found

Table A4.11. Percentage of households owing various assets, by district and gender of the head

| Item | Nampula city Treatment | | Nampula city Control | | Monapo vila Treatment | | Monapo vila Control | |
|--|---------------------------|-----|-------------------------|--------|--------------------------|-----|------------------------|--------|
| | Mean | N | Mean | N | Mean | N | Mean | N |
| Car, purchased new | 0.7% | 596 | 0.3% | 285 | 0.5% | 438 | 0.0% | ***371 |
| Car, purchased second hand | 5.2% | 596 | 1.8% | **285 | 1.8% | 438 | 0.5% | ***371 |
| Motorcycle | 13.8% | 596 | 13.1% | 285 | 16.0% | 438 | 14.3% | **371 |
| Bicycle | 15.9% | 596 | 15.7% | 285 | 31.0% | 438 | 30.9% | 371 |
| Radio | 47.3% | 596 | 43.8% | 285 | 47.7% | 438 | 41.1% | **371 |
| Sound system | 26.2% | 596 | 26.1% | 285 | 11.7% | 438 | 13.2% | *371 |
| Television | 51.2% | 596 | 51.5% | 285 | 21.6% | 438 | 17.8% | **371 |
| Washing machine | 0.2% | 596 | 0.0% | 285 | 0.0% | 438 | 0.9% | ***371 |
| Air conditioner | 0.8% | 596 | 0.0% | **285 | 0.4% | 438 | 1.3% | 371 |
| Sewing machine | 2.4% | 596 | 5.4% | 285 | 3.0% | 438 | 3.3% | 371 |
| Fridge | 8.3% | 596 | 3.8% | ***285 | 2.1% | 438 | 2.0% | 371 |
| Freezer | 29.6% | 596 | 28.9% | 285 | 13.2% | 438 | 10.3% | *371 |
| Electric iron | 24.7% | 596 | 20.6% | **285 | 8.4% | 438 | 4.9% | ***371 |
| Coal iron | 34.0% | 596 | 40.1% | **285 | 35.0% | 438 | 28.9% | **371 |
| Fan | 30.4% | 596 | 24.5% | **285 | 17.0% | 438 | 12.9% | **371 |
| Beds (double, single, cot for children, and bunk beds) | 84.4% | 596 | 84.9% | 285 | 66.9% | 438 | 63.1% | *371 |
| Landline telephone handset | 0.8% | 596 | 0.0% | 285 | 1.2% | 438 | 1.2% | 371 |
| Mobile phone | 63.0% | 596 | 55.0% | ***285 | 38.1% | 438 | 36.7% | *371 |
| Computer | 4.9% | 596 | 3.2% | **285 | 0.9% | 438 | 2.0% | **371 |
| Printer | 2.4% | 596 | 1.4% | *285 | 0.7% | 438 | 1.7% | 371 |
| Wall clocks, wrist or pocket | 30.4% | 596 | 29.1% | 285 | 29.8% | 438 | 26.0% | *371 |
| Electric stove | 2.7% | 596 | 2.4% | 285 | 0.3% | 438 | 1.9% | **371 |
| Gas stove | 1.0% | 596 | 0.0% | ***285 | 0.3% | 438 | 1.6% | **371 |
| Mixed Stove | 0.2% | 596 | 0.0% | 285 | 7.6% | 438 | 2.9% | ***371 |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

Note: Significance testing compares the means treatment and control groups within a given municipality. * indicates significant difference at 10% level, ** at 5%, and *** at 1%. If not noted no significant differences were found

Table A4. 12. Average number and value of purchased assets per household

| Item | Nampula city Treatment | | Nampula city Control | | Monapo vila Treatment | | Monapo vila Control | |
|---|---------------------------|-----|-------------------------|--------|--------------------------|-----|------------------------|--------|
| | Mean | N | Mean | N | Mean | N | Mean | N |
| Average total number of assets per household | 6.9 | 596 | 6.2 | **285 | 4.7 | 438 | 4.3 | ***371 |
| Average number of assets recently purchased | 0.7 | 596 | 0.5 | **285 | 0.7 | 438 | 0.5 | 371 |
| Total value of assets recently purchased per household (Mt) | 211.44 | 596 | 69.71 | ***285 | 112.60 | 438 | 63.53 | *371 |
| Total value of assets recently purchased per household (Mt) | 5,816.58 | 596 | 1,917.71 | ***285 | 3097.753 | 438 | 1747.62 | *371 |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

Note: Significance testing compares the means treatment and control groups within a given municipality. * indicates significant difference at 10% level, ** at 5%, and *** at 1%. If not noted no significant differences were found

Table A4. 13. Production and sales of livestock and sub-products in the last 12 months

| Item | Nampula city Treatment | | Nampula city Control | | Monapo vila Treatment | | Monapo vila Control | |
|---|---------------------------|-----|-------------------------|--------|--------------------------|-----|------------------------|-----|
| | Mean | N | Mean | N | Mean | N | Mean | N |
| % hhs that raised animal in the last 12 months | 25.4% | 596 | 18.7% | ***285 | 35.5% | 438 | 34.4% | 371 |
| Among the households that raised animals: | | | | | | | | |
| % hhs that sold animals alive in the last 12 months | 8.8% | 161 | 14.9% | 55 | 22.3% | 159 | 24.1% | 136 |
| % hhs that sold slaughtered animals in the last 12 months | 61.3% | 161 | 39.4% | ***55 | 55.5% | 159 | 54.0% | 136 |
| Average Tropical Livestock Units (a) | 0.29 | 161 | 0.22 | 55 | 0.27 | 159 | 0.21 | 136 |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

Note: Significance testing compares the means treatment and control groups within a given municipality. * indicates significant difference at 10% level, ** at 5%, and *** at 1%. If not noted no significant differences were found

(a) Livestock Unit (LU) conversion factors: Cattle (0.65), buffalo (0.70), sheep and goats (0.10), pigs (0.25) and poultry (0.01) (FAO, 2005), exclude rabbits.

Table A4. 14. Access to credit in the last 12 months

| Item | Nampula city Treatment | | Nampula city Control | | Monapo vila Treatment | | Monapo vila Control | |
|---|---------------------------|-----|-------------------------|--------|--------------------------|-----|------------------------|-------|
| | Mean | N | Mean | N | Mean | N | Mean | N |
| % of households that applied for credit in the last 12 months | 6.9% | 596 | 8.4% | ***285 | 7.5% | 438 | 5.9% | **371 |
| Reasons for applying for credit (% of households): | | | | | | | | |
| Food consumption | 20.5% | 44 | 20.1% | 23 | 36.5% | 40 | 37.2% | 24 |
| Agricultural investment | 3.3% | 44 | 6.7% | 23 | 4.8% | 40 | 4.0% | 24 |
| Ceremonies | 13.0% | 44 | 7.2% | 23 | 10.9% | 40 | 0.0% | 24 |
| Education | 3.3% | 44 | 0.0% | 23 | 0.0% | 40 | 33.0% | 24 |
| Health | 2.1% | 44 | 76.9% | 23 | 3.4% | 40 | 0.0% | 24 |
| Asset purchase | 32.9% | 44 | 30.2% | 23 | 19.8% | 40 | 24.2% | 24 |
| Travel | 10.3% | 44 | 4.0% | 23 | 0.0% | 40 | 0.0% | 24 |
| Other | 36.8% | 44 | 26.7% | 23 | 35.3% | 40 | 34.6% | 24 |
| For those who did not apply, reasons for not applying for credit (% households): | | | | | | | | |
| No need | 23.2% | 552 | 15.0% | 262 | 22.1% | 398 | 19.7% | 347 |
| Was refused | 3.0% | 552 | 1.4% | 262 | 1.6% | 398 | 2.0% | 347 |
| Lack of access | 19.8% | 552 | 20.1% | 262 | 21.1% | 398 | 17.8% | 347 |
| Concerned about not being accepted | 24.9% | 552 | 34.3% | 262 | 27.5% | 398 | 28.0% | 347 |
| Lack of collateral | 10.2% | 552 | 14.5% | 262 | 9.8% | 398 | 16.0% | 347 |
| High transaction costs | 3.3% | 552 | 6.4% | 262 | 2.7% | 398 | 2.8% | 347 |
| Do not want to offer collateral | 2.0% | 552 | 2.1% | 262 | 4.8% | 398 | 1.9% | 347 |
| Do not want to have debts | 9.6% | 552 | 4.1% | 262 | 6.2% | 398 | 9.8% | 347 |
| Other | 3.3% | 552 | 2.0% | 262 | 4.2% | 398 | 2.0% | 347 |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

Note: Significance testing compares the means treatment and control groups within a given municipality. * indicates significant difference at 10% level, ** at 5%, and *** at 1%. If not noted no significant differences were found

Table A4. 15. Percentage of households that applied for credit by source of credit

| Item | Nampula city Treatment | | Nampula city Control | | Monapo vila Treatment | | Monapo vila Control | |
|---------------------|------------------------|----|----------------------|----|-----------------------|----|---------------------|----|
| | Mean | N | Mean | N | Mean | N | Mean | N |
| Government | 7.3% | 44 | 5.0% | 23 | 3.3% | 40 | 26.4% | 24 |
| Bank | 53.1% | 44 | 25.4% | 23 | 37.7% | 40 | 41.5% | 24 |
| Associations | 8.0% | 44 | 27.0% | 23 | 5.7% | 40 | 17.9% | 24 |
| Companies | 0.0% | 44 | 0.7% | 23 | 1.3% | 40 | 0.0% | 24 |
| NGOs | 0.0% | 44 | 0.0% | 23 | 5.3% | 40 | 2.3% | 24 |
| Traders/Businessmen | 0.5% | 44 | 2.4% | 23 | 0.0% | 40 | 1.6% | 24 |
| Relatives | 11.7% | 44 | 14.9% | 23 | 1.0% | 40 | 9.5% | 24 |
| Friends | 20.1% | 44 | 25.3% | 23 | 39.9% | 40 | 9.0% | 24 |
| Other | 1.5% | 44 | 0.0% | 23 | 6.5% | 40 | 0.6% | 24 |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

Note: Significance testing compares the means of treatment and control groups within a given municipality. * indicates significant difference at 10% level, ** at 5%, and *** at 1%. If not noted no significant differences were found

Table A4. 16. Amount requested and accessed per household and reasons for not accessing credit

| Item | Nampula city Treatment | | Nampula city Control | | Monapo vila Treatment | | Monapo vila Control | |
|---|------------------------|-----|----------------------|--------|-----------------------|-----|---------------------|-------|
| | Mean | N | Mean | N | Mean | N | Mean | N |
| % of households that applied for credit in the last 12 months | 6.9% | 596 | 8.4% | ***285 | 7.5% | 438 | 5.9% | **371 |
| <u>Among those who applied (total N=131):</u> | | | | | | | | |
| Average total amount requested per household (\$US) | 1,022.40 | 44 | 1,218.25 | 23 | 1,499.43 | 40 | 845.77 | 24 |
| Median total amount requested per household (\$US) | 436.21 | 44 | 145.40 | 23 | 141.77 | 40 | 181.75 | 24 |
| % of households that had to present collateral | 14.3% | 44 | 11.9% | 23 | 18.7% | 40 | 19.6% | 24 |
| <u>% of households by type of collateral presented:</u> | | | | | | | | |
| House | 10.3% | 44 | 0.6% | 23 | 0.0% | 40 | 0.0% | 25 |
| Other | 7.6% | 44 | 1.3% | 23 | 8.5% | 40 | 6.4% | 25 |
| Unreported | | | 10.1% | 23 | 10.3% | 40 | 13.3% | 25 |
| % household that received credit | 80.5% | 44 | 92.8% | 23 | 78.9% | 40 | 73.3% | 24 |
| % households that were denied credit | 19.5% | 44 | 7.2% | 23 | 21.1% | 40 | 26.7% | 24 |
| <u>Among those who received credit (total N=95):</u> | | | | | | | | |
| Average amount received per household (\$US) | 612.79 | 29 | 334.90 | 20 | 622.687 | 28 | 1,046.903 | 18 |
| Median amount received per household (\$US) | 218.10 | 29 | 145.40 | 20 | 72.701 | 28 | 363.504 | 18 |
| Average amount to repay per household (\$US) | 738.89 | 29 | 399.34 | 20 | 695.354 | 28 | 1,535.133 | 18 |
| Median amount to repay per household (\$US) | 218.10 | 29 | 159.94 | 20 | 72.701 | 28 | 1,235.914 | 18 |
| Average time to repay the credit (years) | 0.76 | 35 | 1.46 | *21 | 1.65 | 22 | 1.99 | 16 |
| <u>Among those who were denied credit (total N=36):</u> | | | | | | | | |
| <u>% of household by reasons for not getting credit:</u> | | | | | | | | |
| Insufficient income | 10.6% | 15 | 0.0% | 3 | 4.6% | 12 | 75.4% | ***6 |
| Insufficient collateral | 2.5% | 15 | 55.8% | 3 | 63.3% | 12 | 9.9% | 6 |
| Other debts | 3.0% | 15 | 0.0% | 3 | 0.0% | 12 | 0.0% | 6 |
| Other reason | 82.2% | 15 | 34.8% | *3 | 28.8% | 12 | 14.7% | 6 |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

Note: Significance testing compares the means of treatment and control groups within a given municipality. * indicates significant difference at 10% level, ** at 5%, and *** at 1%. If not noted no significant differences were found

Table A4. 19. Number of parcel by type of use by location and gender of the household head

| Type of parcel | Nampula city Treatment | Nampula city Control | Monapo vila Treatment | Monapo vila Control |
|--|---------------------------|-------------------------|--------------------------|------------------------|
| | N | N | N | N |
| Belong to hh and currently in their possession | | | | |
| Residential parcels: | 727 | 147 | 408 | 319 |
| Agriculture parcels: | 129 | 11 | 94 | 65 |
| Rented-out or lent to others | | | | |
| Residential parcels: | 38 | 4 | 26 | 17 |
| Agriculture parcels: | 1 | 0 | 3 | 5 |
| Rented-in or borrowed from others | | | | |
| Residential parcels: | 8 | 1 | 14 | 16 |
| Agriculture parcels: | 64 | 4 | 35 | 18 |

Source: MCA/MINAG's Urban Land Survey, 2010

Table A4. 20. Number of land parcels and parcel characteristics

| Item | Nampula city Treatment | | Nampula city Control | | Monapo vila Treatment | | Monapo vila Control | |
|--|---------------------------|-----|-------------------------|--------|--------------------------|-----|------------------------|-----|
| | Mean | N | Mean | N | Mean | N | Mean | N |
| Average number of parcels per hh: | | | | | | | | |
| Parcels belong to hh and currently in their possession | 1.6 | 596 | 1.5 | 285 | 2.3 | 438 | 2.4 | 371 |
| Parcels rented-out or lent to others | 0.1 | 596 | 0.0 | ***285 | 0.2 | 438 | 0.2 | 371 |
| Parcels rented-in or borrowed | 0.3 | 596 | 0.1 | ***285 | 0.4 | 438 | 0.4 | 371 |
| Average total no. of parcels per hh | 2.0 | 596 | 1.6 | ***285 | 2.9 | 438 | 2.9 | 371 |
| Average total area of parcels (m²) owned by a hh (b) | 1,533.2 | 965 | 1,237.5 | 165 | 2,079.0 | 578 | 2,260.4 | 439 |
| Average parcel area (m²) by parcel type: | | | | | | | | |
| Parcels that belong to hh and currently in their possession | 1,304.3 | 854 | 1,192.1 | 156 | 1,962.2 | 500 | 2,150.2 | 383 |
| Parcels rented-out or lent to others | 415.9 | 39 | 296.1 | 4 | 791.3 | 29 | 1,639.0 | 22 |
| Parcels rented-in or borrowed | 4,427.3 | 72 | 3,723.7 | 5 | 4,497.0 | 49 | 3,548.7 | 34 |
| Average parcel area (m²) by parcel's main use: | | | | | | | | |
| Residence | 636.2 | 771 | 282.4 | ***150 | 599.1 | 446 | 625.9 | 351 |
| Agriculture | 5,638.3 | 194 | 9,481.8 | ***15 | 7,274.4 | 132 | 8,157.1 | 88 |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

Note: Significance testing compares the means of treatment and control groups within a given municipality. * indicates significant difference at 10% level, ** at 5%, and *** at 1%. If not noted no significant differences were found

Table A4. 21. Types of agricultural uses of land parcels

| Item | Nampula city Treatment | | Nampula city Control | | Monapo vila Treatment | | Monapo vila Control | |
|---|---------------------------|-----|-------------------------|------|--------------------------|-----|------------------------|-----|
| | Mean | N | Mean | N | Mean | N | Mean | N |
| % parcels used for residential purposes | 82.5% | 965 | 89.3% | *167 | 77.2% | 577 | 79.3% | 440 |
| % of all parcels used for the following agricultural purposes (b): | | | | | | | | |
| Annual crops | 95.7% | 192 | 93.8% | 15 | 93.9% | 129 | 89.7% | 88 |
| Permanent crops | 42.6% | 192 | 47.4% | 15 | 34.1% | 129 | 36.2% | 88 |
| Fallow | 11.9% | 192 | 10.8% | 15 | 2.4% | 129 | 5.4% | 88 |
| Grazing | 0.0% | 192 | 0.0% | 15 | 0.0% | 129 | 0.0% | 88 |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

Note: Significance testing compares the means of treatment and control groups within a given municipality. * indicates significant difference at 10% level, ** at 5%, and *** at 1%. If not noted no significant differences were found

Table A4. 22. Access to utility and infrastructure in parcels used for residence purpose (a)

| Item | Nampula city Treatment | | Nampula city Control | | Monapo vila Treatment | | Monapo vila Control | |
|---|---------------------------|-----|-------------------------|--------|--------------------------|-----|------------------------|--------|
| | Mean | N | Mean | N | Mean | N | Mean | N |
| % parcels by source of water most used in the parcels: | | | | | | | | |
| Tap | 59.9% | 964 | 78.0% | ***167 | 43.2% | 577 | 42.0% | 436 |
| Borehole | 1.9% | 964 | 1.3% | 167 | 4.3% | 577 | 7.0% | *436 |
| Well private | 22.9% | 964 | 8.7% | ***167 | 27.8% | 577 | 26.6% | 436 |
| Public fountain | 7.2% | 964 | 9.1% | 167 | 8.6% | 577 | 7.0% | 436 |
| River/lake | 6.5% | 964 | 2.9% | 167 | 11.5% | 577 | 14.4% | 436 |
| Other | 1.6% | 964 | 0.0% | 167 | 4.4% | 577 | 3.0% | 436 |
| % parcels by route of access most used in the parcels: | | | | | | | | |
| Primary road | 2.9% | 964 | 0.9% | 167 | 7.7% | 577 | 15.3% | ***436 |
| Secondary road | 15.0% | 964 | 12.8% | 167 | 19.5% | 577 | 17.2% | 436 |
| Tertiary road | 43.7% | 964 | 33.9% | **167 | 36.1% | 577 | 37.4% | 436 |
| Unpaved road | 21.5% | 964 | 37.9% | ***167 | 23.7% | 577 | 19.7% | 436 |
| Other | 16.9% | 964 | 14.5% | 167 | 13.0% | 577 | 10.4% | 436 |
| % of parcels with other amenities on the parcels (b): | | | | | | | | |
| % parcels that have electricity in their parcels | 47.2% | 964 | 56.8% | **167 | 25.6% | 577 | 21.2% | 436 |
| % parcels that have landline in their parcels | 1.1% | 964 | 1.3% | 167 | 1.8% | 577 | 0.4% | **436 |
| % parcels that have access to mobile network in their parcels | 91.5% | 964 | 87.9% | 167 | 80.6% | 577 | 83.0% | 436 |
| % parcels with fruit trees (c) | 67.4% | 965 | 57.8% | **167 | 58.1% | 570 | 54.7% | 438 |
| Average total number of fruit trees per parcel | 8.4 | 639 | 3.4 | 98 | 5.9 | 329 | 4.7 | *236 |
| Average number of buildings per parcel | 1.2 | 965 | 1.3 | *167 | 1.0 | 580 | 1.1 | 440 |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

Note: Significance testing compares the means of treatment and control groups within a given municipality. * indicates significant difference at 10% level, ** at 5%, and *** at 1%. If not noted no significant differences were found

(a) 10 parcels with no information on the access to services

(b) 14 parcels in did not report whether there was fruit trees on the parcels.

(c) 2 parcels did not report the number of buildings

Table A4. 23. Parcel distribution by mode of acquisition (a)

| Item | Nampula city Treatment | | Nampula city Control | | Monapo vila Treatment | | Monapo vila Control | |
|----------------------------------|---------------------------|-----|-------------------------|-----|--------------------------|-----|------------------------|-------|
| | Mean | N | Mean | N | Mean | N | Mean | N |
| Ceded by traditional authorities | 4.1% | 890 | 6.5% | 159 | 3.6% | 526 | 6.7% | **404 |
| Ceded by formal authorities | 2.7% | 890 | 1.6% | 159 | 3.3% | 526 | 4.1% | 404 |
| Ceded by relatives | 13.1% | 890 | 13.4% | 159 | 15.3% | 526 | 15.5% | 404 |
| Occupied | 11.2% | 890 | 11.0% | 159 | 7.2% | 526 | 6.4% | 404 |
| Purchased | 51.1% | 890 | 51.2% | 159 | 53.2% | 526 | 50.4% | 404 |
| Inherited | 17.1% | 890 | 16.0% | 159 | 17.5% | 526 | 16.1% | 404 |
| Other | 0.7% | 890 | 0.4% | 159 | 0.1% | 526 | 0.6% | 404 |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

Note: Significance testing compares the means of treatment and control groups within a given municipality. * indicates significant difference at 10% level, ** at 5%, and *** at 1%. If not noted no significant differences were found

(a) 15 parcels did not report the form of acquisition

Table A4. 24. Agencies involved in and the cost of land acquisition (for parcels in the possession of the households and those rented-out)

| Item | Nampula city Treatment | | Nampula city Control | | Monapo vila Treatment | | Monapo vila Control | |
|---|---------------------------|-----|-------------------------|------|--------------------------|-----|------------------------|------|
| | Mean | N | Mean | N | Mean | N | Mean | N |
| % parcels by people involved in the acquisition of parcel (a): | | | | | | | | |
| Community leaders | 87.3% | 526 | 88.2% | 92 | 86.8% | 325 | 88.9% | 241 |
| Local court | 2.6% | 526 | 1.9% | 92 | 2.4% | 325 | 2.5% | 241 |
| District authorities | 0.4% | 526 | 0.0% | 92 | 0.0% | 325 | 0.0% | 241 |
| Lawyer | 2.7% | 526 | 3.2% | 92 | 3.0% | 325 | 0.9% | *241 |
| Other | 20.1% | 526 | 20.9% | 92 | 22.2% | 325 | 18.5% | 241 |
| Average No. of agencies involved | 1.13 | 526 | 1.14 | 92 | 1.14 | 325 | 1.11 | 241 |
| Average total cost of acquiring the parcel with involvement of (Mt): | | | | | | | | |
| Community leaders | 17.03 | 447 | 6.31 | 83 | 51.12 | 276 | 22.60 | 206 |
| Local court | 43.88 | 13 | 1,945.18 | ***2 | 206.12 | 7 | 1,400.86 | 6 |
| District authorities | 1.00 | 1 | n/a | 0 | n/a | 0 | n/a | 0 |
| Lawyer | 35.93 | 16 | 0.00 | 3 | 1,328.79 | 11 | 0.00 | 4 |
| Other | 0.25 | 106 | 0.00 | 17 | 0.00 | 62 | 150.61 | **52 |
| Value paid to acquire the parcel aside from the above fees (Mt) | 6,830.80 | 526 | 8,814.39 | 92 | 7,400.21 | 325 | 6,131.82 | 241 |
| Total value paid for acquisition of the parcel (Mt) | 6,847.42 | 526 | 8,856.58 | 92 | 7,487.40 | 325 | 6,213.67 | 241 |
| Total value paid for acquisition of the parcel(Mt/m2) (b) | 18.26 | 524 | 45.07 | **92 | 30.47 | 323 | 33.48 | 239 |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

Note: Significance testing compares the means of treatment and control groups within a given municipality. * indicates significant difference at 10% level, ** at 5%, and *** at 1%. If not noted no significant differences were found

(a) Multiple agents/authorities are allowed. Ten parcels had missing data on the agents involved in land acquisition

(b) There are 138 missing values generated in the estimation of acquisition cost per area due to the fact that the area was not reported

Table A4. 25.Types of Land Documents Currently in Possession by Parcel Holder

| Item | Nampula city Treatment | | Nampula city Control | | Monapo vila Treatment | | Monapo vila Control | |
|--|---------------------------|-----|-------------------------|-----|--------------------------|-----|------------------------|-----|
| | Mean | N | Mean | N | Mean | N | Mean | N |
| % parcels by type of documents currently existent that give them property rights to the parcel: | | | | | | | | |
| DUAT | 0.6% | 892 | 0.0% | 162 | 0.4% | 528 | 0.0% | 405 |
| Provisional title | 2.3% | 892 | 3.4% | 162 | 1.5% | 528 | 2.8% | 405 |
| Certificate of cadastral services | 2.1% | 892 | 2.2% | 162 | 1.6% | 528 | 2.8% | 405 |
| Affidavit of purchase/sales | 28.3% | 892 | 28.1% | 162 | 32.4% | 528 | 30.9% | 405 |
| Other | 1.1% | 892 | 0.7% | 162 | 1.6% | 528 | 0.9% | 405 |
| None | 65.6% | 892 | 65.6% | 162 | 62.5% | 528 | 62.6% | 405 |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

Note: Significance testing compares the means of treatment and control groups within a given municipality. * indicates significant difference at 10% level, ** at 5%, and *** at 1%. If not noted no significant differences were found

Table A4. 26. Interest and willingness to pay for DUAT

| Item | Nampula city Treatment | | Nampula city Control | | Monapo vila Treatment | | Monapo vila Control | |
|--|---------------------------|-----|-------------------------|--------|--------------------------|-----|------------------------|-------|
| | Mean | N | Mean | N | Mean | N | Mean | N |
| % parcels that have no DUAT and have initiated the process of obtaining DUAT (a) | 2.3% | 885 | 2.2% | 161 | 2.0% | 521 | 3.9% | *401 |
| Among the parcel with no DUAT and have not initiated the process of obtaining it: | | | | | | | | |
| % parcels in which there is an interest in obtaining DUAT | 87.6% | 862 | 84.4% | 157 | 85.8% | 507 | 86.0% | 386 |
| Average amount per parcel that the hh is willing to pay to obtain DUAT (MT) (b) | 308.90 | 771 | 399.25 | 134 | 280.36 | 442 | 355.06 | **346 |
| Average amount per parcel that the hh is willing to pay to obtain DUAT per square meter (MT/m2) (c) | 1.27 | 769 | 2.10 | ***132 | 1.10 | 440 | 1.29 | 344 |
| Average amount per parcel that the hh is willing to pay to obtain DUAT per square meter per main use of the parcel (MT/m2): | | | | | | | | |
| Residence | 1.42 | 655 | 2.32 | **122 | 1.28 | 362 | 1.52 | 282 |
| Agriculture | 0.17 | 114 | 0.05 | 10 | 0.20 | 78 | 0.28 | 62 |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

Note: Significance testing compares the means of treatment and control groups within a given municipality. * indicates significant difference at 10% level, ** at 5%, and *** at 1%. If not noted no significant differences were found

(a) 6 parcels did not report whether they have initiated the process of obtaining DUAT and thus not included in this analysis.

(b) 301 parcels did not report the value they are willing to pay for obtaining DUAT

(c) 645 parcels generated missing values in the estimation of willingness to pay for DUAT per area

Table A4. 27. Hypothetical sale and rental prices of parcels belonging to the household surveyed

| Item | Nampula city Treatment | | Nampula city Control | | Monapo vila Treatment | | Monapo vila Control | |
|--|---------------------------|-----|-------------------------|----|--------------------------|-----|------------------------|-------|
| | Mean | N | Mean | N | Mean | N | Mean | N |
| Average total value the parcel could be sold for (MT) (a) | 65,715.01 | 555 | 57,568.66 | 98 | 81,991.22 | 311 | 73,946.53 | 263 |
| <u>Average total value per main plot use:</u> | | | | | | | | |
| Residence | 64,726.59 | 462 | 55,403.63 | 92 | 87,812.25 | 258 | 72,426.33 | 218 |
| Agriculture | 72,097.20 | 93 | 89,371.24 | 6 | 53,020.00 | 53 | 80,897.20 | 45 |
| Average total value the parcel could be sold for (MT/m ²) (b) | 252.39 | 554 | 292.00 | 97 | 305.71 | 310 | 344.43 | 261 |
| <u>Value per main use:</u> | | | | | | | | |
| Residence | 285.50 | 461 | 310.64 | 91 | 335.68 | 257 | 411.68 | 216 |
| Agriculture | 39.47 | 93 | 19.99 | 6 | 156.86 | 53 | 40.63 | 45 |
| Average value a room for housing in the parcel could be rented out for (MT/month) (c) | 574.52 | 350 | 347.81 | 57 | 437.87 | 206 | 343.50 | 170 |
| Average value a room for commercial purposes in the parcel could be rented out for (MT/month) (d) | 544.77 | 301 | 701.51 | 45 | 587.63 | 175 | 594.82 | 144 |
| Average value the whole parcel could be rented out for (MT/month) (e) | 5,945.73 | 477 | 2,126.87 | 83 | 5,182.59 | 269 | 1,999.18 | **239 |
| Average monthly value the whole parcel could be rented out for (MT/m ²) (f) | 29.27 | 476 | 8.62 | 82 | 23.16 | 269 | 6.95 | *238 |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

Note: Significance testing compares the means of treatment and control groups within a given municipality. * indicates significant difference at 10% level, ** at 5%, and *** at 1%. If not noted no significant differences were found

(a) 770 parcels with no hypothetical value

(b) For this calculation, 772 missing values were generated on the parcels without land size value

(c) 1,211 parcels with no information on the rental value

(d) 1,329 parcels with no information on the rental value

(e) 926 parcels with no information on the rental value

(f) 3 missing data due to missing information on land size

Table A4. 28. Land conflicts experienced in the past and/or perceived in the future

| Item | Nampula city Treatment | | Nampula city Control | | Monapo vila Treatment | | Monapo vila Control | |
|--|---------------------------|-----|-------------------------|-------|--------------------------|-----|------------------------|-----|
| | Mean | N | Mean | N | Mean | N | Mean | N |
| % parcels that experienced land conflicts (a) | 3.7% | 28 | 0.0% | 6 | 0.0% | 16 | 3.1% | 17 |
| % parcels concerned of having conflict in future (b) | 18.0% | 891 | 18.8% | 162 | 16.1% | 529 | 16.0% | 405 |
| Among hh concerned, % parcels s citing the following people as the potential cause of conflict: | | | | | | | | |
| Traditional leaders | 3.6% | 169 | 0.0% | 28 | 6.5% | 80 | 9.4% | 75 |
| Formal authorities | 43.3% | 169 | 34.0% | 28 | 51.3% | 80 | 40.1% | 75 |
| Family | 12.0% | 169 | 7.3% | 28 | 10.9% | 80 | 9.5% | 75 |
| Neighbors | 30.0% | 169 | 58.7% | ***28 | 18.9% | 80 | 25.2% | 75 |
| Firms | 6.0% | 169 | 0.0% | 28 | 8.0% | 80 | 8.3% | 75 |
| Immigrants | 3.9% | 169 | 0.0% | 28 | 2.5% | 80 | 2.6% | 75 |
| Other | 1.2% | 169 | 0.0% | 28 | 2.0% | 80 | 5.0% | 75 |
| Among hh concerned, % parcels citing the following types of issues as potential cause of conflict | | | | | | | | |
| Boundary errors | 26.1% | 167 | 52.5% | ***28 | 18.6% | 80 | 21.9% | 75 |
| Weak cadastral services | 1.7% | 167 | 0.0% | 28 | 3.1% | 80 | 6.0% | 75 |
| Disagreement between heirs | 7.2% | 167 | 2.4% | 28 | 17.5% | 80 | 14.6% | 75 |
| Incomplete demarcation | 1.9% | 167 | 0.0% | 28 | 2.0% | 80 | 3.2% | 75 |
| Sales to more than one person | 0.0% | 167 | 0.0% | 28 | 0.0% | 80 | 1.0% | 75 |
| Poor consultation with community leader | 2.5% | 167 | 4.1% | 28 | 0.0% | 80 | 0.8% | 75 |
| Lost parcel due to lack of DUAT | 34.4% | 167 | 22.5% | 28 | 41.5% | 80 | 32.2% | 75 |
| Parcel recovered by the authorities | 20.2% | 167 | 14.7% | 28 | 16.2% | 80 | 17.7% | 75 |
| Other | 5.7% | 167 | 3.8% | 28 | 1.2% | 80 | 2.6% | 75 |
| Among hh concerned, % parcels reporting the following as the level of probability of losing the parcel due to conflict: | | | | | | | | |
| Highly probable | 24.8% | 167 | 34.8% | 28 | 24.1% | 80 | 25.0% | 75 |
| Moderately probable | 11.4% | 167 | 12.5% | 28 | 13.0% | 80 | 11.2% | 75 |
| Somewhat probable | 53.0% | 167 | 47.0% | 28 | 48.5% | 80 | 47.6% | 75 |
| Not probable | 6.4% | 167 | 2.5% | **28 | 2.8% | 80 | 11.3% | 75 |
| Does not know | 4.1% | 167 | 3.2% | 28 | 11.0% | 80 | 4.8% | 75 |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

Note: Significance testing compares the means of treatment and control groups within a given municipality. * indicates significant difference at 10% level, ** at 5%, and *** at 1%. If not noted no significant differences were found

(a) 1,927 parcels did not respond to the question and are thus treated as missing observations

(b) 7 parcels did not respond to the question about the concern of having land conflict in future and are thus considered missing observations.

Table A4. 29. Information on renting -out parcels

| Item | Nampula city Treatment | | Nampula city Control | | Monapo vila Treatment | | Monapo vila Control | |
|--|---------------------------|-----|-------------------------|--------|--------------------------|-----|------------------------|------|
| | Mean | N | Mean | N | Mean | N | Mean | N |
| % hh that have parcels rented out or lent to other | 7.6% | 652 | 4.3% | **285 | 10.7% | 382 | 8.6% | 371 |
| % parcels rented-out | 3.6% | 967 | 2.9% | ***167 | 5.9% | 580 | 3.7% | 440 |
| For those that have rented out/lent to others (a): | | | | | | | | |
| % parcels by the relationship of the tenant to the owner of the parcel in the HH: | | | | | | | | |
| Head | 1.4% | 39 | 0.0% | 3 | 7.5% | 27 | 0.0% | 18 |
| Spouse | 1.5% | 39 | 0.0% | 3 | 0.0% | 27 | 0.0% | 18 |
| Child | 0.0% | 39 | 0.0% | 3 | 4.2% | 27 | 13.5% | 18 |
| Sibling | 3.7% | 39 | 35.0% | **3 | 16.9% | 27 | 46.4% | **18 |
| Parent | 0.0% | 39 | 0.0% | 3 | 0.0% | 27 | 0.0% | 18 |
| Niece/nephew | 2.1% | 39 | 0.0% | 3 | 9.4% | 27 | 14.4% | 18 |
| Other relative | 13.3% | 39 | 32.5% | 3 | 27.0% | 27 | 17.1% | 18 |
| Nonrelatives | 77.6% | 39 | 32.5% | *3 | 35.1% | 27 | 8.6% | **18 |
| Monthly rental rate (MT/month) | 1,187.55 | 39 | 11,703.96 | ***3 | 0.00 | 25 | 0.00 | 18 |
| Average total size of land currently rented out (m2) | 415.89 | 39 | 223.72 | 3 | 825.84 | 25 | 1,742.14 | 18 |
| Average total value received for rent per parcel per month(Mt/m2) | 5.08 | 39 | 39.01 | ***3 | 0.00 | 25 | 0.00 | 18 |
| Average number of years since the tenant acquired the use right over this parcel up to now | 3.71 | 38 | 2 | ***3 | 5.89 | 25 | 5.96 | 16 |
| % parcels in which the payment is in cash | 97.8% | 39 | 22.1% | 4 | 4.8% | 29 | 0.0% | 22 |
| % parcels with rental contract with the tenants | 31.0% | 39 | 32.5% | 3 | 4.1% | 26 | 29.1% | 17 |
| Average total number of buildings in the parcels rented out | 1.00 | 39 | 1.00 | 3 | 0.67 | 27 | 0.65 | 18 |
| % parcels renting out those buildings | 100.0% | 30 | 32.5% | 3 | 40.4% | 17 | 38.1% | 12 |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

Note: Significance testing compares the means of treatment and control groups within a given municipality. * indicates significant difference at 10% level, ** at 5%, and *** at 1%. If not noted no significant differences were found

(a) 7 parcels did not provide information on the relationship of the tenant with the owner

Table A4. 30. Information on renting- in parcels

| Item | Nampula city Treatment | | Nampula city Control | | Monapo vila Treatment | | Monapo vila Control | |
|--|---------------------------|-----|-------------------------|--------|--------------------------|-----|------------------------|-----|
| | Mean | N | Mean | N | Mean | N | Mean | N |
| % hhs that have parcels rented-in or borrowed from other | 22.8% | 596 | 7.1% | ***285 | 28.4% | 438 | 24.4% | 370 |
| % parcels rented-in or borrowed from other | 8.3% | 967 | 2.8% | **167 | 7.3% | 580 | 9.2% | 440 |
| For those that have rented out/lent to others: | | | | | | | | |
| % parcels by the relationship of the owner of the parcel with the HH renting-in the parcel (a): | | | | | | | | |
| Head | 0.0% | 71 | 0.0% | 5 | 0.0% | 35 | 0.0% | 33 |
| Spouse | 0.0% | 71 | 0.0% | 5 | 0.0% | 35 | 7.8% | 33 |
| Child | 0.0% | 71 | 0.0% | 5 | 0.0% | 35 | 0.0% | 33 |
| Sibling | 4.0% | 71 | 0.0% | 5 | 1.6% | 35 | 3.9% | 33 |
| Parent | 0.3% | 71 | 0.0% | 5 | 0.0% | 35 | 2.9% | 33 |
| Niece/nephew | 3.6% | 71 | 0.0% | 5 | 0.0% | 35 | 0.0% | 33 |
| Grandchild | 0.0% | 71 | 0.0% | 5 | 0.0% | 35 | 0.0% | 33 |
| Other relative | 24.7% | 71 | 15.7% | 5 | 29.9% | 35 | 11.5% | *33 |
| Nonrelatives | 67.4% | 71 | 84.3% | 5 | 68.6% | 35 | 73.9% | 33 |
| % parcels reporting having rental contract (b) | 7.4% | 71 | 0.0% | 5 | 4.1% | 34 | 7.5% | 34 |
| % parcels by people involved in the rental process | | | | | | | | |
| Community leasers | 9.4% | 71 | 0.0% | 5 | 3.7% | 34 | 1.2% | 34 |
| Local court | 0.0% | 71 | 0.0% | 5 | 0.0% | 34 | 0.0% | 34 |
| District authority | 0.0% | 71 | 0.0% | 5 | 0.0% | 34 | 1.1% | 34 |
| Lawyer | 0.0% | 71 | 0.0% | 5 | 0.0% | 34 | 0.0% | 34 |
| Other | 17.1% | 71 | 22.9% | 5 | 4.1% | 34 | 2.4% | 34 |
| % parcels with no involvement of an agent/institution in the renting process | 74.0% | 71 | 77.1% | 5 | 92.3% | 34 | 95.3% | 34 |
| For the parcels with at least one agent involved, average No. of people involved in the rental of a parcel (b) | 1.02 | 19 | 1.00 | 1 | 1.00 | 3 | 1.00 | 4 |
| Average total cost paid for the renting process per parcel (Mt) (c) | 1.18 | 19 | 0.00 | 1 | 0.00 | 3 | 0.00 | 4 |
| Average monthly rent paid per parcels rented-in (Mt/month) | 855.37 | 22 | 25.00 | 1 | 876.69 | 5 | 82.00 | 5 |
| Average area of land currently rented-in per parcel (m2) | 4,316.26 | 22 | 2,500.00 | 1 | 3,834.08 | 5 | 3,382.49 | 5 |
| Average monthly rent paid per parcels rented-in (Mt/month/m2) | 0.13 | 22 | 0.01 | 1 | 1.09 | 5 | 0.09 | 5 |
| % parcels reporting payment in cash | 0.17 | 72 | 0.23 | 5 | 0.16 | 35 | 0.15 | 34 |
| Average number of years since the tenant acquired the use right over this parcel up to now | 6.12 | 71 | 4.55 | 5 | 3.52 | 35 | 6.43 | 34 |
| Average total number of buildings in the parcels rented-in | 0.30 | 71 | 0.16 | 5 | 0.18 | 35 | 0.41 | 34 |
| % parcels renting in those buildings | 0.32 | 17 | 0.00 | 1 | 0.58 | 4 | 0.12 | 6 |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

Note: Significance testing compares the means of treatment and control groups within a given municipality. * indicates significant difference at 10% level, ** at 5%, and *** at 1%. If not noted no significant differences were found

(a) 16 parcels did not reported their rental information

(b) 133 parcels with no information on agents involved in land acquisition

(c) 127 parcels with no information on rental rate

Table A4. 31. Information on rental values (rented-in and out)

| Item | Nampula city Treatment | | Nampula city Control | | Monapo vila Treatment | | Monapo vila Control | |
|---|---------------------------|----|-------------------------|------|--------------------------|----|------------------------|----|
| | Mean | N | Mean | N | Mean | N | Mean | N |
| Average monthly rent paid per parcels rented (Mt/month) | 1,057.35 | 61 | 8,838.58 | ***4 | 127.33 | 30 | 25.42 | 23 |
| Average area of land currently rented per parcel (m2) | 1,944.69 | 61 | 782.20 | 4 | 1,262.77 | 30 | 2,250.74 | 23 |
| Average monthly rent paid per parcels rented-in (Mt/m2) | 3.14 | 61 | 29.44 | ***4 | 0.16 | 30 | 0.03 | 23 |
| <u>Residence</u> | | | | | | | | |
| Average monthly rent paid per parcels rented (Mt/month) | 1,119.24 | 40 | 11,703.96 | ***3 | 24.29 | 24 | 0.99 | 15 |
| Average area of land currently rented per parcel (m2) | 346.80 | 40 | 223.72 | 3 | 696.19 | 24 | 970.22 | 15 |
| Average monthly rent paid per parcels rented-in (Mt/m2) | 4.79 | 40 | 39.01 | ***3 | 0.18 | 24 | 0.00 | 15 |
| <u>Agriculture</u> | | | | | | | | |
| Average monthly rent paid per parcels rented (Mt/month) | 944.74 | 21 | 25.00 | 1 | 531.99 | 6 | 67.72 | 8 |
| Average area of land currently rented per parcel (m2) | 4,851.89 | 21 | 2,500.00 | 1 | 3,487.73 | 6 | 4,467.81 | 8 |
| Average monthly rent paid per parcels rented-in (Mt/m2) | 0.13 | 21 | 0.01 | 1 | 0.05 | 6 | 0.07 | 8 |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

Note: Significance testing compares the means of treatment and control groups within a given municipality. * indicates significant difference at 10% level, ** at 5%, and *** at 1%. If not noted no significant differences were found

(a) A total of 254 parcels are rented (in/out) of which 124 are used for residence and 130 for agriculture. Out of 254 parcels, 36 parcels do not have information on rental values.

Table A4. 32. Rental participation in the past 5 years

| Item | Nampula city Treatment | | Nampula city Control | | Monapo vila Treatment | | Monapo vila Control | |
|---|---------------------------|-----|-------------------------|-----|--------------------------|-----|------------------------|-----|
| | Mean | N | Mean | N | Mean | N | Mean | N |
| % hhs that rented-in parcels in the last 5 years | 1.4% | 596 | 1.4% | 285 | 1.8% | 438 | 2.9% | 371 |
| Average area of land rented-in in the last 5 years per household (m2) | 460.69 | 2 | 581.68 | 5 | 50.00 | 1 | 889.56 | 3 |
| % hh with rental agreement | 59.7% | 3 | 25.9% | 5 | 0.0% | 1 | 0.0% | 4 |
| % parcels rented-in by uses of parcels: | | | | | | | | |
| Residence | 100.0% | 3 | 100.0% | 5 | 100.0% | 1 | 41.5% | 4 |
| Agriculture | 0.0% | 3 | 0.0% | 5 | 0.0% | 1 | 58.5% | 4 |
| Commerce | 0.0% | 3 | 0.0% | 5 | 0.0% | 1 | 0.0% | 4 |
| Average time past since stopped renting (years) | 0.35 | 3 | 0.32 | 5 | 0.00 | 1 | 0.18 | 4 |
| % parcels by reasons why stopped renting parcels: | | | | | | | | |
| Owner needed the parcels | 19.8% | 3 | 3.8% | 5 | 100.0% | 1 | 58.5% | 4 |
| Household did not need parcel | 59.7% | 3 | 96.2% | 5 | 0.0% | 1 | 41.5% | 4 |
| Other reason | 20.5% | 3 | 0.0% | 5 | 0.0% | 1 | 0.0% | 4 |
| Average rental rate at the time the households stopped renting (Mt) | 212.68 | 2 | 321.56 | 5 | 200.00 | 1 | 100.00 | 1 |
| <u>Rental rate per use:</u> | | | | | | | | |
| Residence | 212.68 | 2 | 321.56 | 5 | 200.00 | 1 | 100.00 | 1 |
| Agriculture | n/a | 0 | n/a | 0 | n/a | 0 | n/a | 0 |
| Commerce | n/a | 0 | n/a | 0 | n/a | 0 | n/a | 0 |
| Average rental rate at the time the households stopped renting (Mt/m ²) | 0.93 | 2 | 0.93 | 5 | 4.00 | 1 | 0.67 | 1 |
| <u>Rental rate per use:</u> | | | | | | | | |
| Residence | 0.93 | 2 | 0.93 | 5 | 4.00 | 1 | 0.67 | 1 |
| Agriculture | n/a | 0 | n/a | 0 | n/a | 0 | n/a | 0 |
| Commerce | n/a | 0 | n/a | 0 | n/a | 0 | n/a | 0 |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

Note: Significance testing compares the means of treatment and control groups within a given municipality. * indicates significant difference at 10% level, ** at 5%, and *** at 1%. If not noted no significant differences were found

n/a - not applicable

Table A4. 33. Types of land investment made in the past 12 months

| Item | Nampula city Treatment | | Nampula city Control | | Monapo vila Treatment | | Monapo vila Control | |
|---|------------------------|------------|----------------------|-------------|-----------------------|------------|---------------------|------------|
| | Mean | N | Mean | N | Mean | N | Mean | N |
| % hh that made at least one type of investment | 26.8% | 596 | 22.8% | 285 | 34.2% | 438 | 30.9% | 371 |
| % parcels that have at least one investment | 18.8% | 967 | 31.3% | ***167 | 26.7% | 580 | 25.3% | ***440 |
| For those that made investments, % parcels by type of investment made: | | | | | | | | |
| increasing the parcel size | 1.2% | 192 | 0.0% | 50 | 5.6% | 149 | 2.6% | 123 |
| constructions of new buildings/houses | 26.7% | 192 | 23.8% | 50 | 36.4% | 149 | 29.2% | 123 |
| repairs, improvements, rehabilitation of buildings | 16.2% | 192 | 10.9% | 50 | 15.8% | 149 | 13.2% | 123 |
| repairs, improvement, rehabilitations of roofs | 37.4% | 192 | 42.6% | 50 | 37.8% | 149 | 44.2% | 123 |
| sewage, drainage, toilets | 10.9% | 192 | 12.5% | 50 | 20.3% | 149 | 15.6% | 123 |
| facilities for water supply | 12.3% | 192 | 21.3% | 50 | 1.6% | 149 | 2.0% | 123 |
| Electricity | 17.3% | 192 | 17.3% | 50 | 12.7% | 149 | 19.6% | 123 |
| landline service | 0.0% | 192 | 0.0% | 50 | 0.0% | 149 | 0.0% | 123 |
| irrigation | 0.0% | 192 | 0.0% | 50 | 0.0% | 149 | 0.0% | 123 |
| Average cost of investment per parcel by type (Mt): | | | | | | | | |
| increasing the parcel size | n/a | 0 | n/a | 0 | n/a | 0 | n/a | 0 |
| constructions of new buildings/houses | 319,670.50 | 15 | 2,284,070.00 | *5 | 48,010.25 | 25 | 191,766.90 | **12 |
| repairs, improvements and rehabilitation of buildings | 132,101.80 | 12 | 14,283.46 | 3 | 22,186.26 | 6 | 14,307.01 | 9 |
| repairs, improvement and rehabilitations of roofs on the buildings | 3,810.40 | 41 | 2,773.07 | 11 | 47,299.64 | 30 | 6,577.98 | 26 |
| sewage, drainage, toilets | 1,150.45 | 8 | 894.97 | 5 | 132.44 | 16 | 219.07 | 7 |
| facilities for water supply | 34,055.57 | 6 | 220,200.00 | **1 | 0.00 | 1 | 200.00 | 1 |
| Electricity | 1,335.21 | 5 | 1,996.93 | 2 | 94,621.27 | 3 | 3,380.67 | **6 |
| Average total cost of investment per parcel (Mt) | 41,151.43 | 192 | 194,582.00 | *50 | 20,847.66 | 149 | 21,952.50 | 123 |
| Total Average investment cost per parcel per m2 (Mt) | 141.71 | 192 | 1,096.85 | **48 | 48.35 | 149 | 153.45 | 123 |

Source: MCA/MINAG's Urban Land Survey, 2010

Note: Significance testing compares the means of treatment and control groups within a given municipality. * indicates significant difference at 10% level, ** at 5%, and *** at 1%. If not noted no significant differences were found

n/a - not applicable

Table A4. 34. Percentage households by their opinion on the effect of DUAT on the value of parcel

| Item | Nampula city Treatment | | Nampula city Control | | Monapo vila Treatment | | Monapo vila Control | |
|---------------|------------------------|-----|----------------------|-----|-----------------------|-----|---------------------|-------|
| | Mean | N | Mean | N | Mean | N | Mean | N |
| Increase | 94.2% | 564 | 94.9% | 317 | 91.7% | 470 | 92.5% | 339 |
| Decrease | 2.2% | 564 | 1.7% | 317 | 1.6% | 470 | 2.6% | 339 |
| Do not affect | 2.2% | 564 | 2.3% | 317 | 2.7% | 470 | 3.0% | 339 |
| Do not know | 1.4% | 564 | 1.1% | 317 | 4.0% | 470 | 1.9% | **339 |
| Total | 100.0% | 564 | 100.0% | 317 | 100.0% | 470 | 100.0% | 339 |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

Note: Significance testing compares the means of treatment and control groups within a given municipality. * indicates significant difference at 10% level, ** at 5%, and *** at 1%. If not noted no significant differences were found

Table A4. 35. Percentage of households by their willingness to pay, willingness to sell and rent out in the case of DUAT

| Item | Nampula city Treatment | | Nampula city Control | | Monapo vila Treatment | | Monapo vila Control | |
|--|------------------------|-----|----------------------|--------|-----------------------|-----|---------------------|--------|
| | Mean | N | Mean | N | Mean | N | Mean | N |
| <i>% hh willing to pay more, less or same for parcel with DUAT than that without DUAT:</i> | | | | | | | | |
| More | 35.2% | 564 | 34.0% | 317 | 42.2% | 470 | 32.2% | ***339 |
| Less | 56.8% | 564 | 59.3% | 317 | 48.7% | 470 | 57.3% | 339 |
| Same | 3.5% | 564 | 4.2% | 317 | 3.6% | 470 | 6.5% | 339 |
| DNK | 4.4% | 564 | 2.6% | 317 | 5.5% | 470 | 4.0% | 339 |
| Total | 100.0% | 564 | 100.0% | 317 | 100.0% | 470 | 100.0% | 339 |
| <i>% hh more willing to sell property in the case of DUAT:</i> | | | | | | | | |
| Yes | 34.9% | 564 | 28.7% | *317 | 43.3% | 470 | 45.6% | 339 |
| No | 55.4% | 564 | 64.0% | **317 | 46.3% | 470 | 47.6% | 339 |
| DNK | 9.7% | 564 | 7.3% | *317 | 10.4% | 470 | 6.7% | **339 |
| Total | 100.0% | 564 | 100.0% | 317 | 100.0% | 470 | 100.0% | 339 |
| <i>% hh more willing to rent out property in the case of DUAT:</i> | | | | | | | | |
| Yes | 51.3% | 564 | 43.1% | ***317 | 59.7% | 470 | 57.9% | 339 |
| No | 40.1% | 564 | 48.2% | ***317 | 33.6% | 470 | 35.7% | 339 |
| DNK | 8.6% | 564 | 8.6% | 317 | 6.7% | 470 | 6.4% | 339 |
| Total | 100.0% | 564 | 100.0% | 317 | 100.0% | 470 | 100.0% | 339 |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

Note: Significance testing compares the means of treatment and control groups within a given municipality. * indicates significant difference at 10% level, ** at 5%, and *** at 1%. If not noted no significant differences were found

Table A4. 36. Households' opinion about the effect of DUAT on conflicts and expropriation

| Item | Nampula city Treatment | | Nampula city Control | | Monapo vila Treatment | | Monapo vila Control | |
|---|------------------------|-----|----------------------|-------|-----------------------|-----|---------------------|--------|
| | Mean | N | Mean | N | Mean | N | Mean | N |
| % hh believing that demarcation/DUAT will make disputes more or less likely to occur | | | | | | | | |
| More likely | 21.0% | 564 | 15.6% | **317 | 32.5% | 470 | 31.3% | 339 |
| Somewhat likely | 15.1% | 564 | 16.4% | 317 | 17.4% | 470 | 18.7% | 339 |
| Somewhat unlikely | 21.0% | 564 | 18.5% | 317 | 15.0% | 470 | 17.8% | *339 |
| More unlikely | 38.1% | 564 | 44.1% | 317 | 30.2% | 470 | 29.4% | 339 |
| DNK | 4.7% | 564 | 5.4% | 317 | 4.9% | 470 | 2.9% | 339 |
| Total | 100.0% | 564 | 100.0% | 317 | 100.0% | 470 | 100.0% | 339 |
| % hh believing that demarcation/DUAT will make disputes more or less likely to be resolved | | | | | | | | |
| More likely | 55.3% | 564 | 51.6% | 317 | 54.1% | 470 | 56.3% | 339 |
| Somewhat likely | 25.6% | 564 | 26.0% | 317 | 21.5% | 470 | 21.6% | 339 |
| Somewhat unlikely | 7.6% | 564 | 8.3% | *317 | 9.1% | 470 | 5.7% | **339 |
| More unlikely | 7.7% | 564 | 7.4% | 317 | 10.7% | 470 | 11.8% | 339 |
| DNK | 3.8% | 564 | 6.6% | 317 | 4.5% | 470 | 4.6% | 339 |
| Total | 100.0% | 564 | 100.0% | 317 | 100.0% | 470 | 100.0% | 339 |
| HHs' opinion about DUAT reducing the risk of expropriation of land: % hhs | | | | | | | | |
| Yes | 93.7% | 564 | 93.4% | 317 | 93.7% | 470 | 93.8% | 339 |
| No | 1.8% | 564 | 2.1% | 317 | 2.2% | 470 | 1.9% | 339 |
| DNK | 4.5% | 564 | 4.5% | 317 | 3.9% | 470 | 4.2% | 339 |
| Total | 100.0% | 564 | 100.0% | 317 | 99.8% | 470 | 100.0% | 339 |
| HHs' opinion about DUAT making the expropriation of land more transparent: % hhs | | | | | | | | |
| Yes | 91.8% | 564 | 93.5% | 317 | 94.9% | 470 | 95.9% | 339 |
| No | 3.6% | 564 | 1.8% | **317 | 1.3% | 470 | 1.8% | ***339 |
| DNK | 4.5% | 564 | 4.7% | 317 | 3.6% | 470 | 2.3% | 339 |
| Total | 100.0% | 564 | 100.0% | 317 | 99.8% | 470 | 100.0% | 339 |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

Note: Significance testing compares the means of treatment and control groups within a given municipality. * indicates significant difference at 10% level, ** at 5%, and *** at 1%. If not noted no significant differences were found

Table A4. 37. Households' opinion about the effect of DUAT on investment and collateralization

| Item | Nampula city Treatment | | Nampula city Control | | Monapo vila Treatment | | Monapo vila Control | |
|--|------------------------|-----|----------------------|--------|-----------------------|-----|---------------------|-------|
| | Mean | N | Mean | N | Mean | N | Mean | N |
| hhs' opinion about making improvement or investments on their properties in the case of DUAT: % hhs | | | | | | | | |
| More likely | 63.6% | 564 | 66.6% | **317 | 69.0% | 470 | 66.7% | 339 |
| Somewhat likely | 22.3% | 564 | 19.6% | ***317 | 18.5% | 470 | 23.3% | 339 |
| Somewhat unlikely | 4.7% | 564 | 4.2% | 317 | 3.8% | 470 | 2.4% | 339 |
| More unlikely | 2.8% | 564 | 2.0% | 317 | 1.3% | 470 | 1.3% | 339 |
| DNK | 6.6% | 564 | 7.7% | 317 | 7.2% | 470 | 6.2% | 339 |
| Total | 100.0% | 564 | 100.0% | 317 | 99.8% | 470 | 100.0% | 339 |
| hhs' opinion about using their parcels as collateral to obtain credit in the case of DUAT: % hhs | | | | | | | | |
| More likely | 28.9% | 564 | 22.5% | 317 | 39.5% | 470 | 39.2% | 339 |
| Somewhat likely | 17.0% | 564 | 21.6% | 317 | 20.6% | 470 | 23.8% | 339 |
| Somewhat unlikely | 18.5% | 564 | 21.5% | 317 | 15.4% | 470 | 17.8% | *339 |
| More unlikely | 19.0% | 564 | 17.8% | 317 | 8.8% | 470 | 4.9% | **339 |
| DNK | 16.6% | 564 | 16.6% | 317 | 15.7% | 470 | 14.4% | 339 |
| Total | 100.0% | 564 | 100.0% | 317 | 100.0% | 470 | 100.0% | 339 |
| % hh by purposes to which they would use the credit for if the hh is able to use land as collateral | | | | | | | | |
| Agriculture | 34.0% | 564 | 30.4% | 317 | 48.2% | 470 | 60.5% | 339 |
| Make improvements/expand property | 16.0% | 564 | 26.2% | 317 | 17.9% | 470 | 18.2% | 339 |
| Business | 50.0% | 564 | 43.5% | 317 | 33.9% | 470 | 21.2% | 339 |
| Total | 100.0% | 564 | 100.0% | 317 | 100.0% | 470 | 100.0% | 339 |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

Note: Significance testing compares the means of treatment and control groups within a given municipality. * indicates significant difference at 10% level, ** at 5%, and *** at 1%. If not noted no significant differences were found

Table A4. 38. Knowledge about women's rights under the land law of 1997

| Item | Nampula city Treatment | | Nampula city Control | | Monapo vila Treatment | | Monapo vila Control | |
|--|------------------------|-----|----------------------|-------|-----------------------|-----|---------------------|-----|
| | Mean | N | Mean | N | Mean | N | Mean | N |
| % hhs reporting that women have the right to inherit land on equal basis as their brothers | | | | | | | | |
| Yes | 91.9% | 564 | 72.7% | 317 | 58.0% | 470 | 59.0% | 339 |
| No | 1.4% | 564 | 19.6% | **317 | 32.4% | 470 | 31.4% | 339 |
| DNK | 7.1% | 564 | 7.4% | 317 | 10.0% | 470 | 10.0% | 339 |
| Total | 100% | 564 | 100% | 317 | 100% | 470 | 100% | 339 |
| % hhs reporting that women have the right to maintain a piece of their ex-husband's land in case of divorce | | | | | | | | |
| Yes | 82.4% | 564 | 80.2% | 317 | 74.8% | 470 | 73.4% | 339 |
| No | 12.7% | 564 | 16.0% | 317 | 21.8% | 470 | 22.7% | 339 |
| DNK | 5.0% | 564 | 3.8% | 317 | 3.2% | 470 | 3.9% | 339 |
| Total | 100% | 564 | 100% | 317 | 100% | 470 | 100% | 339 |
| % hhs reporting that women have the right to apply for a formal land title | | | | | | | | |
| Yes | 90.0% | 564 | 88.1% | 317 | 85.9% | 470 | 84.2% | 339 |
| No | 6.9% | 564 | 7.3% | 317 | 9.8% | 470 | 12.4% | 339 |
| DNK | 3.1% | 564 | 4.6% | 317 | 4.1% | 470 | 3.5% | 339 |
| Total | 100% | 564 | 100% | 317 | 100% | 470 | 100% | 339 |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

Note: Significance testing compares the means of treatment and control groups within a given municipality. * indicates significant difference at 10% level, ** at 5%, and *** at 1%. If not noted no significant differences were found

Table A4.39. Perceptions about the land law of 1997

| Item | Nampula city Treatment | | Nampula city Control | | Monapo vila Treatment | | Monapo vila Control | |
|---|---------------------------|-----|-------------------------|-------|--------------------------|-----|------------------------|-------|
| | Mean | N | Mean | N | Mean | N | Mean | N |
| % hh informed about the 1997's land law | 12.2% | 564 | 14.1% | 317 | 12.7% | 469 | 15.0% | 339 |
| If informed, how much the hh knows about the land law: | | | | | | | | |
| None | 3.2% | 72 | 12.5% | 47 | 19.6% | 65 | 11.5% | 55 |
| A little | 79.9% | 72 | 76.2% | 47 | 55.6% | 65 | 67.5% | 55 |
| A fair amount | 12.0% | 72 | 8.7% | 47 | 18.2% | 65 | 14.8% | 55 |
| A lot | 4.9% | 72 | 2.6% | 47 | 6.5% | 65 | 6.2% | 55 |
| Total | 100.0% | 72 | 100.0% | 47 | 100.0% | 65 | 100.0% | 55 |
| If informed, % hhs by the means that they received information of land law | | | | | | | | |
| Local leaders | 26.0% | 72 | 9.9% | 47 | 38.6% | 65 | 26.3% | 55 |
| Dissemination by authorities | 36.1% | 72 | 33.6% | 47 | 29.1% | 65 | 45.2% | 55 |
| Others | 37.9% | 72 | 56.5% | 47 | 32.3% | 65 | 28.5% | 55 |
| Total | 100.0% | 72 | 100.0% | 47 | 100.0% | 65 | 100.0% | 55 |
| If informed, % hhs that received information about the land law of 1997 | 5.3% | 72 | 10.4% | *47 | 7.7% | 65 | 22.4% | ***55 |
| If informed, % hhs that knows specific rights of the land law of 1997 | 63.9% | 72 | 39.0% | ***47 | 36.3% | 65 | 61.6% | ***55 |
| The opinions of informed HH's about how the land law strenghtens land tenure: % hhs | | | | | | | | |
| Very useful | 73.6% | 72 | 67.3% | **47 | 72.8% | 65 | 63.6% | 55 |
| Somewhat useful | 24.5% | 72 | 22.3% | 47 | 7.3% | 65 | 25.7% | **55 |
| Useless | 0.0% | 72 | 1.1% | 47 | 1.0% | 65 | 0.0% | 55 |
| Cannot say | 1.9% | 72 | 9.3% | *47 | 18.8% | 65 | 10.7% | 55 |
| Total | 100.0% | 72 | 100.0% | 47 | 100.0% | 65 | 100.0% | 55 |
| % of the informed hhs that think that in accordance with the land law of 1997 have right to sell or buy land | | | | | | | | |
| Yes | 7.4% | 72 | 4.3% | 47 | 9.1% | 65 | 14.1% | 55 |
| No | 51.4% | 72 | 50.4% | 47 | 51.1% | 65 | 64.3% | 55 |
| DNK | 41.2% | 72 | 45.2% | 47 | 39.8% | 65 | 21.6% | 55 |
| Total | 100.0% | 72 | 100.0% | 47 | 100.0% | 65 | 100.0% | 55 |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

Note: Significance testing compares the means of treatment and control groups within a given municipality. * indicates significant difference at 10% level, ** at 5%, and *** at 1%. If not noted no significant differences were found

Table A4.40. Value of household food consumption per month (Mt)

| Item | Nampula city Treatment | | Nampula city Control | | Monapo vila Treatment | | Monapo vila Control | |
|---|---------------------------|-----|-------------------------|--------|--------------------------|-----|------------------------|-------|
| | Mean | N | Mean | N | Mean | N | Mean | N |
| Basic food (cereals, roots and tubers) | 1,366.25 | 596 | 1,342.23 | 285 | 733.47 | 438 | 770.77 | 371 |
| Legumes/vegetables | 577.20 | 596 | 559.59 | 285 | 294.73 | 438 | 365.72 | 371 |
| Fruits and Nuts | 226.91 | 596 | 151.94 | ***285 | 165.97 | 438 | 123.22 | 371 |
| Meats and animal products (including fish) | 1,325.85 | 596 | 1,097.08 | **285 | 790.52 | 438 | 720.02 | 371 |
| Other foods (sugar, condiments, beverages, vegetable oil) | 704.79 | 596 | 910.46 | 285 | 398.18 | 438 | 465.74 | 371 |
| Meals and beverages in restaurants | 58.40 | 596 | 34.66 | 285 | 8.91 | 438 | 10.60 | 371 |
| Value of total food consumption (Mt) | 4,259.39 | 596 | 4,095.96 | 285 | 2,391.77 | 438 | 2,456.07 | 371 |
| Value of total food consumption (USD) | 154.83 | 596 | 148.89 | 285 | 86.94 | 438 | 89.28 | 371 |
| Value of total food consumption per capita per day (Mt) | 30.37 | 596 | 27.67 | 285 | 17.40 | 438 | 22.25 | **371 |
| Value of total food consumption per capita per day (USD) | 1.10 | 596 | 1.01 | 285 | 0.63 | 438 | 0.81 | **371 |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

Note: Significance testing compares the means of treatment and control groups within a given municipality. * indicates significant difference at 10% level, ** at 5%, and *** at 1%. If not noted no significant differences were found

Table A4.41. Household Dietary Diversity by location and gender of the household head

| Item | Nampula city Treatment | | Nampula city Control | | Monapo vila Treatment | | Monapo vila Control | |
|---------------------------------------|---------------------------|-----|-------------------------|--------|--------------------------|-----|------------------------|--------|
| | Mean | N | Mean | N | Mean | N | Mean | N |
| Staple cereals | 94.6% | 596 | 98.8% | ***285 | 94.0% | 438 | 89.0% | **371 |
| Tubers | 86.5% | 596 | 90.3% | 285 | 81.5% | 438 | 74.8% | **371 |
| Meat | 32.1% | 596 | 29.0% | 285 | 32.0% | 438 | 25.0% | **371 |
| Eggs | 23.3% | 596 | 19.6% | 285 | 20.5% | 438 | 16.1% | 371 |
| Fish and shellfish or other seed food | 93.9% | 596 | 93.2% | 285 | 96.8% | 438 | 91.0% | **371 |
| Legumes | 91.8% | 596 | 90.0% | 285 | 84.2% | 438 | 83.7% | 371 |
| Vegetables | 92.7% | 596 | 98.1% | ***285 | 97.5% | 438 | 93.5% | ***371 |
| Fruit | 91.1% | 596 | 93.8% | 285 | 82.7% | 438 | 82.1% | 371 |
| Milk and milk products | 19.5% | 596 | 15.9% | 285 | 17.9% | 438 | 10.6% | ***371 |
| Oil and oil seeds | 95.3% | 596 | 95.8% | 285 | 92.7% | 438 | 91.6% | 371 |
| Sugar | 91.1% | 596 | 89.8% | 285 | 86.4% | 438 | 81.5% | *371 |
| Miscellaneous | 98.9% | 596 | 98.7% | 285 | 97.6% | 438 | 99.1% | 371 |
| Household Dietary Diversity (HDDS) | 9.11 | 596 | 9.13 | 285 | 8.84 | 438 | 8.38 | ***371 |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

Note: Significance testing compares the means of treatment and control groups within a given municipality. * indicates significant difference at 10% level, ** at 5%, and *** at 1%. If not noted no significant differences were found

Table A4.42. Average monthly non-food expenditures per household (Mt)

| Item | Nampula city Treatment | | Nampula city Control | | Monapo vila Treatment | | Monapo vila Control | |
|---|---------------------------|-----|-------------------------|--------|--------------------------|-----|------------------------|--------|
| | Mean | N | Mean | N | Mean | N | Mean | N |
| Clothing (Mt/month) | 480.00 | 596 | 540.24 | 285 | 526.82 | 438 | 682.51 | 371 |
| Rent, utilities and household security (Mt/month) | 92.86 | 596 | 171.77 | ***285 | 178.65 | 438 | 413.18 | ***371 |
| Household appliances, accessories (Mt/month) | 35.15 | 596 | 51.65 | 285 | 15.80 | 438 | 39.51 | *371 |
| Household durable goods, electricity, domestic services (Mt/month) | 125.11 | 596 | 121.23 | 285 | 82.04 | 438 | 236.24 | ***371 |
| Health (Mt/month) | 164.02 | 596 | 199.06 | 285 | 99.42 | 438 | 190.78 | **371 |
| Transportation (Mt/month) | 632.72 | 596 | 393.31 | ***285 | 360.11 | 437 | 215.46 | ***370 |
| Communication (Mt/month) | 149.80 | 596 | 134.05 | 285 | 193.96 | 438 | 299.53 | **371 |
| Culture and recreation (Mt/month) | 42.81 | 596 | 30.74 | 285 | 11.03 | 438 | 57.28 | **371 |
| Fuel (Mt/month) | 311.18 | 596 | 267.62 | 285 | 179.54 | 437 | 165.37 | 370 |
| Education (Mt/month) | 73.59 | 596 | 71.73 | 285 | 99.00 | 438 | 77.06 | 371 |
| Miscellaneous assets and services (Mt/month) | 123.99 | 596 | 180.27 | *285 | 110.33 | 438 | 220.20 | ***371 |
| Average total monthly household expenditures on non-food items (Mt) | 2,231.24 | 596 | 2,161.66 | 285 | 1,849.40 | 438 | 2,592.77 | ***371 |
| Average total monthly household expenditures on food (Mt) | 4,273.03 | 596 | 4,092.92 | 285 | 2,361.72 | 438 | 2,354.74 | 371 |
| Total household monthly expenditures (Mt) | 6,504.27 | 596 | 6,254.58 | 285 | 4,211.11 | 438 | 4,947.51 | **371 |
| Total household monthly expenditures (US) | 236.43 | 596 | 227.36 | 285 | 153.08 | 438 | 179.84 | **371 |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

Note: Significance testing compares the means of treatment and control groups within a given municipality. * indicates significant difference at 10% level, ** at 5%, and *** at 1%. If not noted no significant differences were found

Table A4.43. Percent of individuals living on less than \$1.25 per day (based on PPP exchange rate) and less than 16.7 Mt per day (based on the local poverty line)

| Item | Nampula city Treatment | | Nampula city Control | | Monapo vila Treatment | | Monapo vila Control | |
|--|---------------------------|--------|-------------------------|--------|--------------------------|--------|------------------------|---------|
| | Mean | N | Mean | N | Mean | N | Mean | N |
| Average per capita expenditures per day (USD PPP) | 1.67 | 50,718 | 1.72 | 97,289 | 1.25 | 16,080 | 1.80 | ***6340 |
| % individuals in poverty based on global measure (i.e., <\$1.25/day) | 33.2% | 50,718 | 28.3% | 97,289 | 48.8% | 16,080 | 42.8% | 6,340 |
| Average per capita expenditures per day (Meticais) | 45.82 | 50,718 | 47.42 | 97,289 | 34.26 | 16,080 | 49.43 | ***6340 |
| % individuals in poverty based on national poverty line (i.e., <16.7 Mt/day) (a) | 40.9% | 50,718 | 38.5% | 97,289 | 55.8% | 16,080 | 47.4% | 6,340 |
| Actual number of people per group | 2,484 | | 2,568 | | 3,181 | | 1,115 | |

Source: MCA/MINAG's Urban Land Survey, 2010

Weighted to reflect population

Note: Significance testing compares the means of treatment and control groups within a given municipality. * indicates significant difference at 10% level, ** at 5%, and *** at 1%. If not noted no significant differences were found

(a) Using the poverty line for Urban Nampula (16.70 Mt/day/person) from MPD (2010)