LAND-POOR IN A "LAND-ABUNDANT" SETTING: UNRAVELING A PARADOX IN MOZAMBIQUE

Plan B Paper for the Degree of M. S.

MICHIGAN STATE UNIVERSITY
HIGINO FRANCISCO DE MARRULE

1998

PLAN B

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By

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A PLAN B PAPER

Submitted to
Michigan State University
in partial fulfilment of the requirements
for the degree of

MASTER OF SCIENCE

Department of Agricultural Economics

1998

Abstract

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It is important to better understand why in Mozambique, a land abundant country by Sub-Saharan Africa countries standards, there are seemingly many land-poor households. In Mozambique, recent studies show that land plays a key role in generating income for rural households, and those with less land tend to be poor. Thus, the present study was intended to further confirm the existence of land-and income-poor households, to understand the nature and evolution of this group and to clarify the factors that are leading to its creation.

Data from 521 rural households across the cotton belt in Northern Mozambique and from the Ministry of Agriculture 1996 National Smallholder Survey were used. Additional data collection consisted of in-depth case studies in selected villages of Nampula and Cabo Delgado Provinces, and field area measurements in these locations.

This study has confirmed the existence of a significant group of land- and income-poor households in Northern Mozambique. Results also showed that land inequality throughout the country is similar to that found in Nampula and Cabo Delgado, and this inequality has changed little three years after the ending of the war. Analysis of the relationship between land holdings and household income showed that the observed inequality in land distribution is a problem, in that land holdings are a major determinant of household income. Thus, land poor households face both a serious income shortage and, in all likelihood, a critical food security problem.

Results show that understanding the way the customary tenure system and related traditional decision making structures operate within the society is important to better understand why some smallholders are land-poor. Findings indicate that there is an effect on land access of local social hierarchy. In the Macua society specifically, findings suggest that there is an effect of local social hierarchy on land access. The role of the principal *Atata* was shown to be especially important in the Nampula villages. It was shown that the size of *Matala* under the control each of principal *Atata* varies greatly in these villages; that per capita land availability within these *Matala* also varies greatly; and that households in small *Matala* are only slightly more likely to possess fields outside their *Matala* than households in large *Matalas*. We, therefore, hypothesize that the size of *Matala* is a key determinant of total land availability at the household level, and suggest focusing further research efforts on this issue.

Dedication

To **Loulita and Junior**, your love, patience and encouragement was crucial to my achievement. I LOVE YOU.

ACKNOWLEDGMENTS

I would like to acknowledge several people and institutions who contributed to the completion of my Master Program. Thanks are due to Dr. Michael Weber, my major professor for encouraging me to pursue graduate studies and for his guidance throughout my course work. I am grateful to Dr. David Tschirley, my thesis advisor for his productive guidance and supervision of the analysis and writing of this thesis. I am thankful to Dr. Daniel Clay for his willingness to serve on my committee and for his useful suggestion for future research on this topic.

My special thanks go to the members of the MAP/MSU Food Security Project in Mozambique. As part of the team since 1991, I have been exposed to an enjoyable research environment and lots of challenges. For all the support and friendship, I would like to thank the research team: Ana Paula Santos *(estamos juntos neste barco desde o inicio),* Rui Benefica, Anabela Mabota, Jose Jeje, Pedro Arlindo, Paul Strasberg, Cynthia Donovan and Diego Rose. I also would like to thank the support staff for their dedication, friendship and smiles: Conceiçao, Simao, Chico, Dava, Lalu, Reginaldo, Augusto Musita, Dona Edite and the late sr. Onezio.

USAID Mozambique, through the African American Institute's ATLAS program deserve a special thanks for their financial support. Special thanks are also due to Yolande Zhaler, Anita Johnson, marks Chabedi and Ketrini Thomas at the ATLAS program.

In East Lansing, special thanks to my country mates Paulo, Flora, Naldinho and Rui with whom I have strong ties of brotherhood. Thanks also to my Brazilians friends Marcelo, Rosane and Fernando for their support and friendship *afinal falamos Portugues*. Special thanks Leonidas Murembya, my friend and roommate.

The learning environment in the Department of Agricultural Economics was excellent. In part, my success is also due to the friendship and productive interaction with my fellow graduate students as well as with professors. To all, my sincere thanks.

Thanks to all members of my family, whose moral support and encouragement regarding my education have been invaluable. Special thanks to my parents Marrule and Rosalina, brothers and sister, just one word: *Kanimambo.*

Finally, I thank my wife Loulita. She has been an extraordinary source of support and encouragement regarding my education. To my little boy Junior, my source of happiness.

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LIST OF ACRONYMS

AE	Adult Equivalent
DE	Department of Statistics
Frelimo	Frente de Libertação de Moçambique
FSP	Food Security Project
GAR	Greater Agricultural Region
GPS	Geographical Positioning System
Ha	Hectare
JVC	Joint Venture Company
LAE	Labor adult equivalent
LOMACO	Lonrho-Mozambique Agro-Industrial Company
MAP/MSU	Ministerio de Agricultura e Pescas/Michigan State University
MOA	Ministry of Agriculture
MSE	Micro and Small Enterprise
OPEN	Oilseed Press Enterprises in Nampula
SAMO	Sociedade Algodoeira de Monapo
SSA	Sub-Saharan Africa
SODAN	Sociedade de Desenvolvimento Algodoeiro de Namialo

Chapter 1

1.0 Introduction

> *"...it is often believed that incomes and consumption in the rural areas (of Africa) are relatively evenly distributed. This belief is founded on the assumption of land abundance, the role of the customary land tenure system in preventing landlessness, and the widespread prevalence of subsistence production based on family labor. One of the conclusions of this study is that this picture is no longer valid in the African countryside."* (Ghai and Radwan, 1983)

Two years after Ghai and Radwan reached their conclusion, Lipton(1985) noted that it was still widely believed that the laws and the customs of most African societies assign, to each adult male, a cultivable area of the size dictated by family needs on the basis of available family labor. In 1998 in Mozambique, conventional wisdom still supports this perception of land abundance and equal access. Based primarily on the country's relatively low population density, it still is widely believed that land is abundant and that the limiting factor to gain access to land was thought to be labor.

The newly approved Land Law implicitly accepts this view suggesting that the customary tenure system be left to operate on its own and be protected from large concessions. It does not explore the inner workings of the customary tenure system at

all. An implication one could draw is that those who worked on the law and its various regulations assumed that equity in access to land is not a problem within the smallholder sector.

Land tenure has proved to be a very sensitive issue in Mozambique as well as in other parts of the world. The current and dominant debate on land in Mozambique points to conflicts between large formal sector individuals wanting land and the people (smallholders) within the customary system who may be affected by land allocation to these individuals. This is an important issue which merits serious attention. Yet, we believe that a full analysis of the issue of land access requires that the customary system itself also be evaluated.

Evidence from a recent study in northern Mozambique points to the existence of many households with access to much less land than would be expected, given the amount of labor they have (MAP/MSU, 1997). One should recognize that inequality in access to land would be a less important issue if land-poor households were capable of relying more on income from non-farm labor activities or other assets. If this were so, one would predict that in such rural areas the correlation between land assets and income would be weak and rural poverty would not only be associated with land access.

At this point, there are two major questions to ask: 1) why is there a strong competition for land in northern Mozambique? and 2) what is the situation of land access in the rest

of the country? Competition for land may be the result of lack of coordination among all institutions related to land tenure associated with a limited amount of readily available arable land nearby other economic opportunities. Finally problems may also be caused by the fact that both commercial farmers and smallholders are being attracted to the same areas, especially those areas with fertile soils, perennial water, infrastructure (such as roads), and market access. One also could hypothesize that the large commercial farmers enjoy an advantage over smallholders by exploiting the formal tenure system to gain access to land.

Overall in Mozambique land is generally not scarce and is generally allocated through a system that takes into account household needs and labor availability, yet to the extent that there are land-poor households, it becomes important to: a) identify within the rural smallholder sector who are the land poor households; b) determine if these households tend also to be income-poor, and if so; c) try to better understand why they are land and income-poor.

1.1 Research Objectives

This study has three main goals:

1) to determine whether there is a significant group of land and income-poor rural households in northern Mozambique;
2) to understand the nature and evolution of this group, and clarify the factors that are leading to its creation;

3) to draw implications from the findings and suggest future research on this topic.

The specific objectives of the study are as follows:

1) to identify rural households from previous rural surveys that are land and income-poor;
2) to confirm, through additional field work, whether the data on these households is substantially correct (i.e., that these households are, in fact, land and income-poor);
3) to compare the socioeconomic characteristics of these households with other, better-off, households;
4) to determine to the extent possible, the factors that have led to their being land and income-poor; and
5) to draw implications and recommendations for future research through analysis of the findings from this study.

1.2 Organization of the Paper

This paper is organized in seven chapters. Chapter two provides details of the methodology used, explains techniques applied for data collection at the smallholder and village levels, and outlines the field measurement methods used. Chapter three briefly discusses theoretical issues of land distribution in a land-abundant setting, including insights from a household economy view of the rural households. Empirical evidence on land distribution from recent studies in Mozambique is presented in

Chapter four. Factors affecting land access in the smallholder sector are discussed in Chapter five. The dynamics of the local (traditional) land allocation system in Northern Mozambique, including a number of case studies, are discussed in Chapter six. Finally, Chapter seven summarizes the major findings, proposes recommendations based on lessons learned, and suggests future research.

Chapter 2

Methodology

2.0 General Characteristics of the Study Area

The geographical focus of this study coincides with the location of a detailed household survey conducted by Michigan State University and the Ministry of Agriculture and Fisheries Food Security Project in Mozambique (MAP/MSU FSP) during 1994/1995 (see Figures 2-1 and 2-2). That survey focused on Monapo and Meconta districts of Nampula province and Montepuez district of Cabo Delgado province. This study focus on the same areas.

The study zone is an area of relatively good soils, relatively high population density compared to other areas of Mozambique and of strong competition for land, not just among smallholders but from outsiders as well.

Table 2.1 presents population densities of all provinces of Mozambique, and for districts within Nampula and Cabo Delgado provinces. Except for Maputo province (including the cities of Maputo and Matola), Nampula province has the highest average density in the country (43.8 inhabitants/Km^2). Monapo district has one of the highest densities in the country (72.1), but Meconta's density is relatively low (29.2). Cabo Delgado's population density (17.4) is less than half that of Nampula, and Montepuez is well bellow the province mean and among the lowest in the country (5.7). In

Figure 2-1 Map of Mozambique

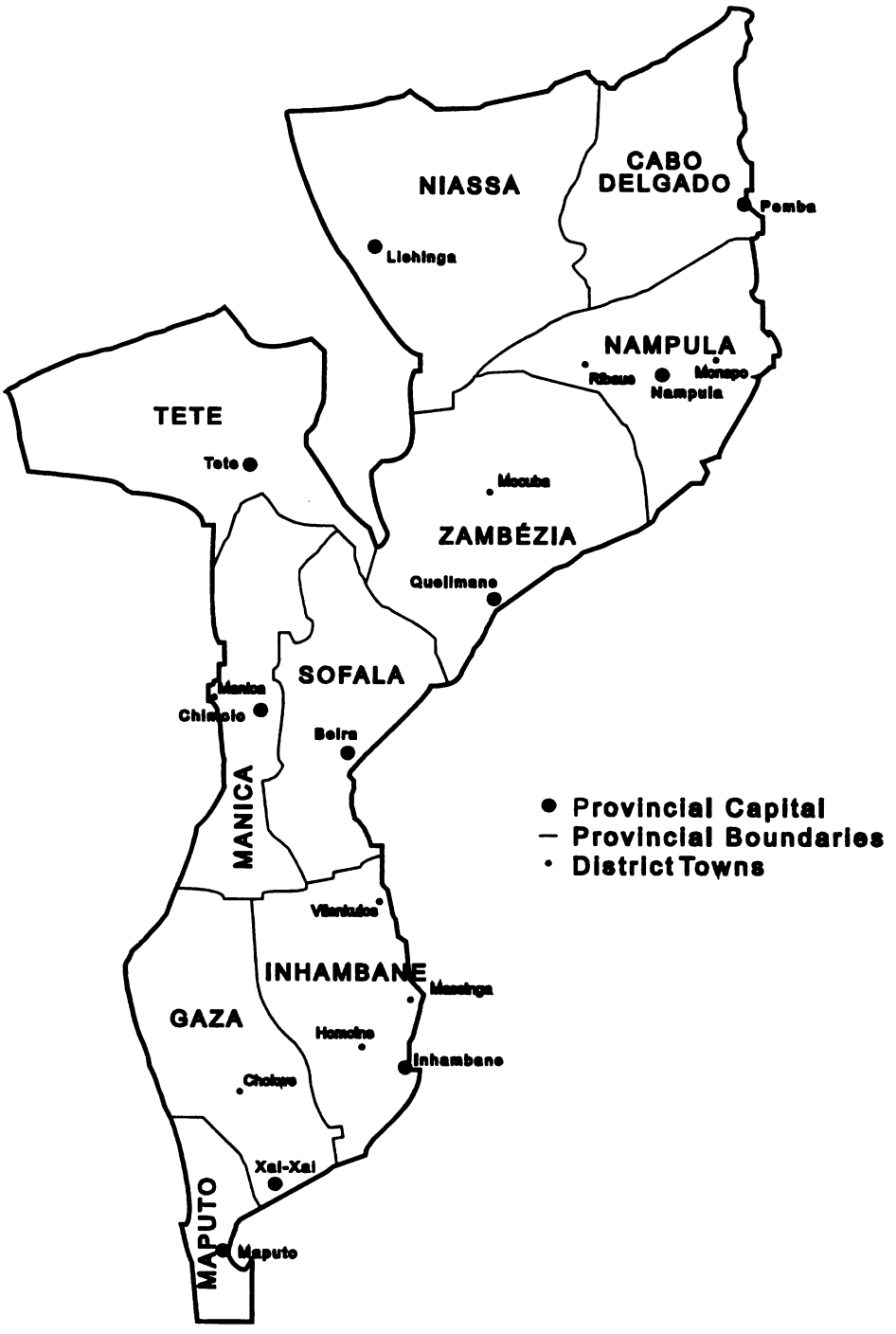

Figure 2-2. Areas of Influence of JVC and Private Cotton Companies in Nampula and Cabo Delgado Province, 1995.

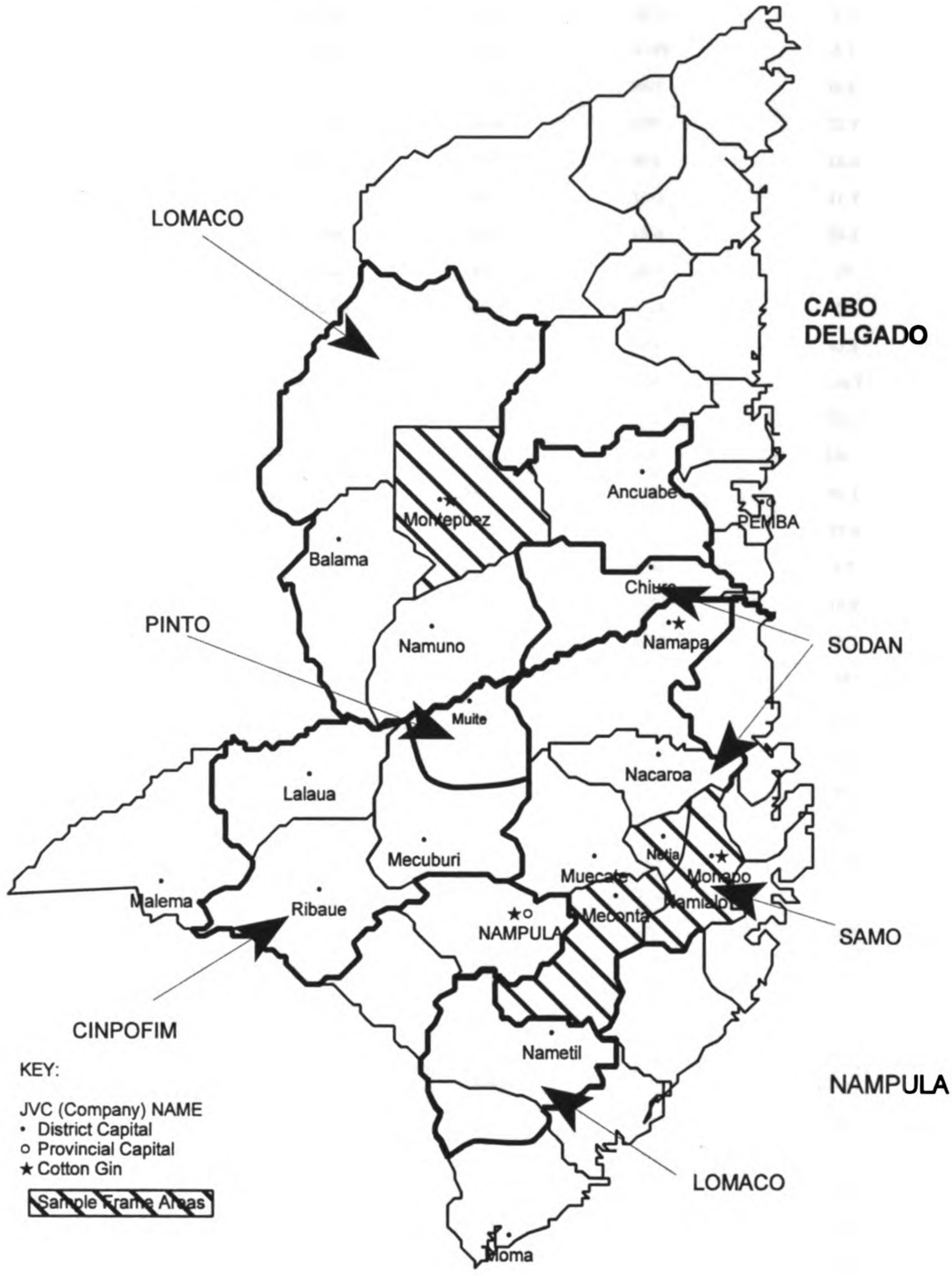

Table 2.1 Population Density in All Provinces of Mozambique, 1997.

Province	District	Population	Area (Km^2)	Population Density
Niassa		1030203	122176	8.4
Cabo Delgado		1356363	77867	17.4
	Montepuez	90663	15871	5.7
	Mueda	123354	14150	8.7
	Namuno	169475	9615	24.5
	Muidumbe	65058	1987	32.7
	Nangade	50347	3031	16.6
	Palma	39843	3493	11.4
	Pemba Metuge	41830	1094	38.2
	Quissanga	35024	2061	17
	Balama	123685	5619	22
Nampula		3426237	78197	43.8
	Nampula (city)	369223	390	946.7
	Nacala	217747	310	702.4
	Mozambique Island	64738	186	348.1
	Angoche	287119	2986	96.2
	Erati	90963	2793	32.6
	Lalaua	42283	4378	9.7
	Malema	114996	6122	18.8
	Meconta	108873	3733	29.2
	Mecuburi	116313	7252	16
	Memba	226009	4555	49.6
	Mogincual	116250	4274	7.2
	Mogovolas	28644	4771	60
	Moma	241626	5677	42.6
	Monapo	259439	3598	72.1
	Mossuril	77862	3428	22.7
	Muecate	60839	4075	14.93
	Murrupula	122039	3100	39.4
	Nacala-a-Velha	112243	967	116.1
	Namapa	286747	5671	50.6
	Nampula	106885	3650	29.3
	Ribaue	117699	6281	18.7
Zambezia		3763453	103127	36.5
Tete		1222231	100,724	12.1
Manica		838158	61661	13.6
Sofala		1570491	67218	18.4
Inhambane		1518015	68615	22.1
Gaza		1388677	75549	18.4
Maputo (province)		2103110	23576	89.2
Country		18334001	783095	23.4

Sources: Ministry of Agriculture (1991): Diagnostico Nacional do Sector Agrario, Anexo.

general, the study zone has population densities that range from very low (Montepuez) to medium (Meconta) and quite high (Monapo) compared to other districts and provinces of Mozambique. Yet these densities are not high by Sub-Saharan African standards (See Table 2.2). In fact, there are seven *countries* with densities that exceeded that in Monapo district, the most densely settled district in our study area.

2.1 Procedures

To address the research objectives of this study, existing household data were first utilized to examine the issue of land distribution within the smallholder sector, and to clarify household positions with respect to access to land. Following this analysis, new quantitative and qualitative data were collected and analyzed. While in Mozambique, bibliographical research on how the traditional system of land allocation works in Nampula and Cabo Delgado provinces was also conducted by the author.

2.1.1 Use of Existing Data

Between June 1994 and January 1996, the Food Security project surveyed 521 rural households across the cotton belt (Nampula and Cabo Delgado Provinces, in Northern Mozambique). According to Strasberg (1997) and MAP/MSU (1996), the sampling strategy was as follows: 1) identification of a universe of the villages in the area under the influence of a certain JVC, with more than 20 cotton growers in 1992/93 agricultural season; 2) stratification of the villages according to cotton production schemes (block/dispersed) and from which the villages were selected (4 in each strata,

Table 2.2 Population Densities in Sub-Saharan Africa, by Country (1994).

Country	Population (Millions)	Area (1000 x Km²)	Population Density (Inhabitants/Km²)
Mauritius	1.1	2	550.0
Rwanda	7.8	26	300.0
Burundi	6.2	28	221.4
Nigeria	108	924	116.9
Gambia	1.1	11	100.0
Malawi	9.5	118	80.5
Uganda	18.6	236	78.8
Togo	4	57	70.2
Lesotho	1.9	30	63.3
Sierra Leone	4.4	72	61.1
Ethiopia	54.9	1097	50.0
Benin	5.3	113	46.9
Kenya	26	580	44.8
Cote d'Ivoire	14	322	42.9
Senegal	8.3	197	42.1
Burkina Fasso	10.1	274	36.9
South Africa	40.5	1221	33.2
Tanzania	28.8	945	30.5
Guinea-Bissau	1	36	27.8
Zimbabwe	10.8	391	27.6
Cameroun	13	475	27.4
Guinea	6.4	246	26.0
Mozambique	18.3	783	23.4
Madagascar	13.1	587	22.3
Ghana	16.6	796	20.9
Zambia	9.2	753	12.2
Congo	2.6	342	7.6
Central African Republic	3.2	623	5.1
Gabon	1.3	268	4.9
Botswana	1.4	582	2.4
Namibia	1.5	824	1.8

Note: Population figures refers to mid-1994.
Source: World Development Report, World Bank, 1996.

in each district[1]); 3) census in all villages with the objective of identifying the types of cotton production schemes in use; 4) random selection of households in each village according to cotton production scheme within each strata. Each household was interviewed at least five times during this phase of the data collection. Household level questionnaires were designed to collect data to compute annual and seasonal estimates of agricultural production and sales, off-farm activities, total household income, labor use, food consumption, household demographic structure, and land access and use.

This database was used in the present study to identify households that are both land- and income-poor, relatively speaking. In each village, households were ranked in quintiles of income and land holdings (cultivated and fallow) per adult equivalent (AE), with quintile one being the lowest and five the highest. A cross tabulation of quintiles of income and quintiles of land per AE allowed for a classification of each household in the sample according to their position in the cross tabulation table. There was no *a priori* expectation about the pattern that would emerge from such a cross tabulation. However, if one assumes that 1) agriculture is the only productive activity households are involved in and 2) all agricultural land and labor has equal productivity, then it would be expected that households would be lined up in a diagonal Northwest-Southeast (see Table 2.3). But we know that in the study area these assumptions do not

[1] Monapo and Meconta in Nampula province, Montepuez in Cabo Delgado province.

Table 2.3 Cross tabulation of Quintiles of Income per AE and Quintiles of Land per AE (hypothetical case).

		Quintiles of Land Per AE				
		Q1	Q2	Q3	Q4	Q5
Quintiles of Income per AE	Q1	X				
	Q2		X			
	Q3			X		
	Q4				X	
	Q5					X

Table 2.4 Cross Tabulation of Quintiles of Income per AE and Quintiles of Land per AE in Monapo/Meconta, Nampula Province, Mozambique (1995).

		Quintiles of Land Per AE				
		Q1	Q2	Q3	Q4	Q5
Quintiles of Income per AE	Q1	**21**	6	5	2	2
	Q2	6	**11**	10	6	3
	Q3	4	7	**8**	12	5
	Q4	3	8	7	**6**	12
	Q5	2	4	6	10	**14**

Source: FSP/MAP/MSU Survey, 1995.

entirely hold. Households have other sources of income off-farm and not all agricultural land and labor has equal productivity. Thus, in the real world we would expect some dispersion around the diagonal (see Table 2.4). The extent to which households are concentrated along the diagonal is an indication of how important land is in determining household welfare, that is income per adult equivalent goes up

strongly as a function of the amount of land the individuals in each household have access to.

Households falling in the lowest 40% (bottom 2 quintiles) of both income and land per AE, were classified as land- and income-poor. Those in the highest 40% (top 2 quintiles) of each variable were classified as land- and income-rich. In addition to these two groups, households were also classified as land-poor/income-rich, land-rich/income-poor, and those in a transitional situation were just classified as others.

Within each village, households were classified according to the criterion above described. Then, villages with a low percent of households in the categories of our interest were dismissed.

Additionally, we wanted to capture possible differences in land allocation due to the presence of JVC's (wether the village have cotton blocks under control of the JVC). Following these criteria, four out of twenty one villages were selected, two in each province. Specifically, we selected, Mepine and Varrua in Nampula province and Nacuca and Nacimoja in Cabo Delgado province. Within each of the selected villages, households were selected based on their known land and income category, choosing those households in land and income-poor, and those in land-poor but income-rich categories.

2.1.2 New Data Collection

Once selected, households from the prior sample were revisited on two separate occasions with specific objectives in each visit. In the first visit, data from the previous survey regarding income sources and amounts, number and size of fields were checked. In the latter case, all previously disclosed fields were measured, as well as any new fields identified since the prior visit.

In a second visit, households were interviewed more informally to attempt to understand the reasons for their being land- and income-poor. These interviews were often combined with interviews of local leaders.

At the beginning of this work, there was a perception in the author's mind that purely economic and war-related factors[2] would be behind the fact that numerous households were land and income poor. This perception started changing when the author had meetings with several key informants in Maputo and Nampula city. Most of the key informants began to point-out that social factors related to the nature of the society in Northern Mozambique would be more likely to better explain the situation. Thus, we started to focus also on organizational issues, specially those likely to be related with land access, of the matrilineal and matrilocal society found in Nampula and Cabo Delgado Provinces.

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2 The 15 years of civil war ended in late 1992.

Then, it was obvious, given the nature of the problem and lessons learned from the past and field observation, that it was necessary to conduct informal interviews both with local leaders in the selected villages and with each household in the poorest group. The issue discussed in these interviews was mainly land access at the village and household levels.

At the village level, participants in the interviews were not only government officials but also representatives of the customary system[3]. Interviews were conducted in a friendly atmosphere. Frequently participants showed their interest by saying that it was the first time someone was asking questions regarding the traditional system of land allocation. Indeed, the Frelimo government prohibited practices of the traditional system of land allocation just after independence[4]. The traditional system inherent to the society, was also banned. So the elders were at the beginning of interviews hesitant to say things that might affect their lives in the future. However, explanation of the purpose of the study and why it was important to have their sincere collaboration lead to a more open conversation, and in most cases visits lasted for more than three hours.

The fact was brought to our attention that within the northern region, where the Macua society is predominant, within the smallholder sector there are two systems of land

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3 See chapter six for more details of the organization and structure of the traditional (customary) system.

4 Mozambique independence was in June 25, 1975.

allocation, working in parallel. First the "traditional" matrilineal system is operating, where the *Atata* (uncle from the mother's side) plays a key role in the extended family. Secondly, the other system operating is more related to the colonial and FRELIMO structures (not matrilineal) in which *Regulos* (traditional chiefs) and others (Party Secretary, e.g.) were predominant.

From the discussions with the leaders, the complexity of the issue became apparent. For instance, we learned that in a single village, there were several *Atatas*, each one with land under his control, called *Matala* in the local language. Among other things, we also learned that supposedly there was "reserve land", which the *Regulo* had the power to allocate. What are the procedures to gain access to land within each system? Do the systems interact with each other? Was there land available to all who wanted to use it? These were some of the issues pursued during the interviews. Given the limited amount of time and the need to carefully understand the issues under discussion, we decided to conduct a more detailed case study in only one village.[5]

Varrua, in Nampula province was chosen given the existence of both systems of land allocation. Also contributing to the choice of Varrua was the fact that after so many visits, it would be easier to interact with both traditional and official authorities in charge of land allocation. Thus in this village a detailed case study was conducted.

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[5] More details in Chapter six.

As part of the case study in Varrua, land under "control" of the *"Cabo"*, *"Atata"* and *"Chefes"*[6] was measured. For this purpose a Geographical Positioning System (G.P.S.) was used. This is an easy device to operate. It allows for coordinates to be taken of the area to be measured. These coordinates could later be entered in Geographical Information System Software, such as Arcview which can be used to design a map according to the coordinates entered and to determine the area inside the map. Just for comparison, members of the "Serviços Provinciais de Geografia e Cadastro" in Nampula province, said that using traditional measurements methods, they would take about twenty to twenty five days to measure the same area as the author did in two days using the G.P.S.

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6 The role of these traditional structures will be better explained in chapter six.

CHAPTER 3.

Theoretical Considerations

The objectives of this chapter are to (1) present an hypothesized pattern of land distribution with no limits to access and (2) develop a framework for analysis of the rural household economy.

3.0 Hypothesized Pattern of Land Distribution with no Limits to Access

We begin by analyzing a pattern of land distribution with no limits to access. To do that, we use the same specific assumptions as Binswanger and McIntire, that are (a) population density in the area is low, implying that cultivable land is abundant; (b) there are no "external"[7] barriers to land access; and (c) simple or "traditional" technologies are used by all households. As a result of these assumptions, land available per household member should be nearly equal across households. In Binswanger and McIntire's (1987) words, "cultivated area per working household member is largely invariant to household size and wealth".

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7 In Mozambique, rural households have access to land-use rights at no monetary cost (Moçambique, 1997).

An important additional consideration is to think about cultivated land per adult-equivalent[8]. It measures how much land a household has compared with its caloric needs, where the needs of an adult are greater than those of a child, and the needs of a man are generally greater than those of a woman. Evaluating a household's land holding per AE shows how truly the households are either "land-rich" or "land-poor" by reflecting the differences between families with different numbers of members and different proportions of adults and children.

As an expected result of the above assumptions of an impartial land tenure system, land holdings per household would be anticipated to vary according to the size of the household. Large households (more mouths or people to feed) will have access to more land. As a result, land holding per AE would be expected to be much less variable across households. This is shown in Table 3.1, with constant area available per adult-equivalent across each quartile. While land area per household goes up from quartile 1 to 4, it remains constant on a per adult equivalent basis.

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8 For example, two households may have the same farm size but different consumption needs due to their internal composition, even if each have the exactly same number of members. One way to take into account this disparity (size and sex) is to use an alternative method based on a per adult equivalent. This is similar to the per capita concept, but differs from it because it allows households to vary in terms of calorie consumption based on gender and age of the members of a particular household.

In contrast, Table 3.1 shows a district with non-equitable land access, where the situation of land per adult equivalent is quite different. When land holding is measured on a per household basis, the shares of land again increases for the larger quartiles. But

Table 3.1 Alternative Methodologies to Measure Cultivated Land Distribution Among Smallholders.

Quartile of land per district	Quartile defined as: Land area per household		Available AE per Household	Quartile defined as: Land per adult equivalent	
	Ha	% cultivated area		Ha	% cultivated area
District with equitable land holding	**2.5**	**100**	**2.5**	**1.0**	**100**
Quartile 1	1.0	10	1.0	1.0	25
Quartile 2	2.0	20	2.0	1.0	25
Quartile 3	3.0	30	3.0	1.0	25
Quartile 4	4.0	40	4.0	1.0	25
District with inequitable land holding	**2.5**	**100**	**2.5**	**1.0**	**100**
Quartile 1	1.0	10	3.0	0.3	5
Quartile 2	2.0	20	4.0	0.5	8
Quartile 3	3.0	30	2.0	1.5	24
Quartile 4	4.0	40	1.0	4.0	63

Source: MOA/MSU Food Security Project (1994).

as the number of mouths to feed increases, land holding per AE increases rather than remain constant. In this case a household in quartile 4 has 4.0 ha per AE, while household in quartile 1 has only 0.3 ha per AE. This result illustrates a strong unequal land access across the four quartiles.

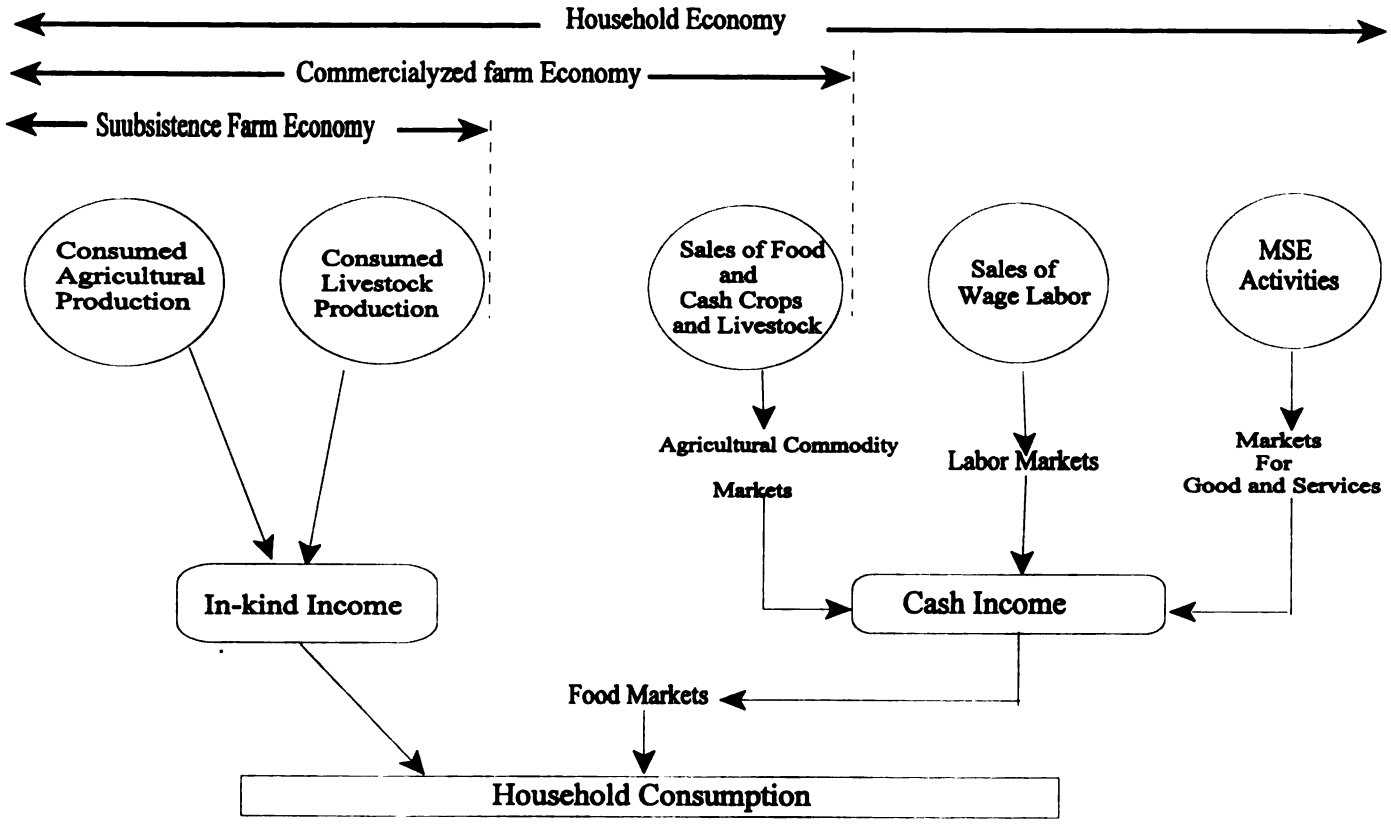
3.1 Insights from a Household Economy Perspective

Figure 3.1 shows a model of a range of income and food security strategies potentially available to rural households. This is a conceptual approach which can be utilized to analyze these households.

The subsistence farm economy approach assumes that households produce all their own consumption needs, through agricultural and livestock production. Consumed agricultural and livestock production constitute in-kind income. In general, one can state that this is a relatively closed economy.

On the other hand, in a commercialized farm economy, besides including consumed agricultural and livestock production, households have access to agricultural commodity markets for sale of surpluses of food crops, cash crops and livestock, allowing them to obtain cash income. This cash income can be converted into household consumption by the way of food markets. Thus, a particular household can have two alternatives for obtaining food: through own production, or through food markets.

Figure 3.1 Conceptual Framework for Rural Household Economy



Finally, if there are efficient labor markets and markets for goods and services, this opens up possibilities for households to diversify their income sources. In other words, besides the agricultural and livestock production and sales of food and agricultural produce, one can think of a certain household selling labor and/or being involved in micro enterprise activities. Note that labor availability is a major constraint a particular household may face to becoming involved in all activities in a broad household economy.

How does the household economy perspective relate to the issue of land access? Agricultural production is only one of many possible sources of rural household income. In theory, land-poor households could make-up for their lack of land through increased wage earnings or through micro/small enterprises activities, followed by a conversion of that income into food, goods and services. However, there are several pre-conditions for this to happen:

1. Rural labor markets, and agricultural commodity markets for sale and food markets for purchase, must be in place and function relatively effectively;
2. There must be local demand, or the ability to reach more distant demand for articles that can be produced by Micro and Small Enterprises (MSE); and
3. There must be in place programs to develop rural human skills/capital.

3.1.1 Rural Labor Markets

According to this conceptual framework (Figure 3.1), rural households have the option to allocate their labor into farm and non-farm activities. If a household allocates labor only to farm activities, the household generally falls into a subsistence farm economy category, becoming part of a commercialized farm economy only if part of the agricultural production and livestock is sold. If, on the other hand, households allocate significant labor to non-farm activities, then the household would be in a much broader category, that is, the household economy as previously described.

In a situation where there is land scarcity, the labor market would become an extremely important source of income. However, if land is abundant, one should not rule out the possibility of a household diversifying its source of income by selling labor, although it may not be the major source of income for the household.

Previous studies on the labor market in Mozambique found most rural households relying heavily on farm production. Indeed, MOA/MSU (1992) found that only 16% of the rural household income in Monapo and Angoche, were originated from off-farm payments, while in Ribaué this resulted in 11% of the total income. The same study also found for Monapo and Ribaué, a negative relationship between the non-farm share of household income and farm size; households with little land tended to earn more of their income from non-farm sources. This suggests that some households were facing constrained access to land, thus forcing them towards diversification beyond

agriculture. This situation puts significant pressure on the landless or near-landless households, if one considers that there are not many off-farm activities available to rural households because of the thinness and seasonality of the labor market (Strasberg, 1997 and MOA/MSU, 1992). Thus, rural households need to look for other alternatives to earn cash income and transform this income into food, goods and services.

3.1.2 Sale of Agricultural Commodities

The sale of agricultural commodities would be one of the most important sources of income for households. The assumption is that households producing food crops and/or cash crops would have access to markets for the sale of agricultural goods and that these markets function effectively to convert the products into cash income. This author found that for 55-97% of the surveyed households, food sales represented a major source of cash income, suggesting that this activity constitute an important source of cash income.

3.1.3 Rural Food Markets

Households must have access to rural food markets that function effectively to allow local consumers to convert income into food. In the case that rural food markets do not function effectively, then households might be in a situation where they have to produce most of their food requirements. Cash income they obtain from selling agricultural goods sale will not be effectively converted into food. In other words,

households may find themselves selling agricultural goods (from their own production) at low prices and buying food (during the hungry season) at very high prices, or in the extreme case not being able to purchase food, even if they have cash. In the case where households must rely almost exclusively on their own food production, land-poor households would be severely affected.

Strasberg (1997), compared results of the 1991 Nampula Smallholder Survey and the 1994-1996 MAP/MSU FSP Smallholder Survey and found that food market participation among smallholders had increased.

3.1.4 Employment/Income Opportunities

Employment/Income opportunities refer to rural MSEs. There must be a local demand or the ability to reach (transportation and information system) more distant demand for articles that can be produced by rural MSEs, thus creating employment opportunities. In most of rural Mozambique, these opportunities are not in place or if they are, transaction costs to access them are very high[9].

3.1.5 Development of Rural Human Skills/Capital

Related to the issue in discussion, the development of rural human skills/capital may play a major role in improving opportunities for rural households. Investment in

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[9] See Benfica (1998) for a detailed discussion on MSEs.

human capital pays off in the long-term. In the short-term it may represent a cost for the government or institution providing it. In the long-term, skilled rural labor would play a major role in increasing agricultural productivity, due to their willingness to adopt new technologies (if on the farm), and to compete in the labor market in a much better position.

3.2 Summary and Conclusions

In the study area there are not many non-farm income opportunities for households, due to thinness of the labor market, weak food markets, poor development of rural human skills/capital, and few MSEs opportunities. This situation leaves the agricultural production position of the household as the dominant and reliable source of income, thus increasing the importance of land access. Consequently, one should expect a strong relationship between amount of land available and level of income attained by households (Tschirley and Weber, 1994).

The next chapter will present empirical evidence on land distribution in the smallholder sector, and the relationship between land holdings and household welfare.

CHAPTER 4

Empirical Evidence from Mozambique

This chapter brings together empirical evidence from Mozambique on two issues: land distribution in the smallholder sector (section 4.0), and the relationship between land holdings and household welfare (section 4.1).

4.0 Land Distribution in the Smallholder Sector

As shown in Chapter 1, Mozambique has a low population density by SSA standards, suggesting relative land abundance. This section uses primary data from three sources covering a five year period, to investigate whether this relative abundance has been translated into relatively equal land access in the smallholder sector.

Tschirley and Weber (1994) examined land area under the control of sampled households, using three alternative definitions of smallholder land holdings: cultivated plus fallow land per household, cultivated plus fallow land per household consumption adult equivalent, and cultivated plus fallow land per household laborer, and found that there were wide differences in land distribution among smallholders, suggesting barriers to access for some households. As was shown in the previous chapter, land holdings per household would, in the absence of serious barriers to access, be expected to be strongly positively correlated with household size. As a result, land holdings per

household adult equivalent and land holdings per household laborer would be much less variable across households.

It was widely believed that with the end of the civil war in 1992, smallholders would be able to move back to their "areas of origin" (areas where people lived before being displaced due to security reasons) and not only reopen their old fields but also have the opportunity to open new fields. Therefore, given the perceived abundance of land, land distribution within the smallholder sector would no longer be a contentious issue. Yet three separate data bases collected since the end of the war suggest that land distribution within the sector remains a problem. These data sets are 1) the 1993 National Agricultural Survey, 2) the FSP data set from Nampula and Cabo Delgado and 3) the 1996 National Agricultural Survey.

Nine months after the signature of the Rome Peace Accord[10] , the Department of Statistics of the Ministry of Agriculture and Fisheries (DE/MAP), conducted its first National Agricultural Survey. Results of this survey were published by MOA/MSU (1994), and indicated that the pattern of smallholder land distribution was still problematic, and similar to that observed in the FSP study, using 1991 data.

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10 The Rome Peace Accord was signed in October 4, 1992 and the smallholder national survey was conducted around July 1993.

Table 4.1 Land (cultivated and fallow) per Household and per Household Adult Equivalent by Surveyed Districts of Nampula and Cabo Delgado Provinces, 1991 and 1995.

District / Household land area quartile	Quartiles defined as Area per household		Quartile defined as Area per household adult equivalent	
	Ha	% of area held	Ha	% of area held
Monapo (1991)	**2.14**	**100**	**0.77**	**100**
Quart. 1	0.73	9	0.25	8
Quart. 2	1.53	18	0.50	16
Quart. 3	2.19	26	0.75	24
Quart. 4	4.14	48	1.60	51
Ribaué (1991)	**3.49**	**100**	**1.00**	**100**
Quart. 1	1.20	9	0.30	7
Quart. 2	2.72	19	0.69	18
Quart. 3	4.02	30	1.09	27
Quart. 4	6.12	42	1.96	48
Angoche (1991)	**1.51**	**100**	**0.54**	**100**
Quart. 1	0.59	10	0.17	8
Quart. 2	0.98	14	0.33	15
Quart. 3	1.49	27	0.50	24
Quart. 4	2.90	48	1.15	53
Montepuez (1995)	**3.47**	**100**	**1.26**	**100**
Quart. 1	1.62	9	0.59	12
Quart. 2	2.70	25	0.86	17
Quart. 3	3.55	22	1.20	24
Quart. 4	5.77	44	2.39	47
Monapo/Meconta (1995)	**4.09**	**100**	**1.52**	**100**
Quart. 1	1.76	11	0.68	12
Quart. 2	3.31	19	1.55	19
Quart. 3	4.37	28	1.67	27
Quart. 4	6.83	42	2.59	42
CARE (1995)	**3.89**	**100**	**1.57**	**100**
Quart. 1	2.15	11	0.83	13
Quart. 2	3.31	26	1.23	20
Quart. 3	4.17	26	1.62	26
Quart. 4	6.05	37	2.59	41

Notes: CARE refers to the districts of Namapa, Ribaué, Mecuburi and Namapa.
Quartiles vary by the measure of land area used.
Source: Tschirley and Weber, 1994, and 1995 FSP data set.

Table 4.1 uses FSP data from 1991 (war time) and 1995 (3 years after peace) to present mean area and percent of total area per district held by land area quartile under two definitions of land holdings: 1) land area per household and 2) land area per household adult equivalent. As in 1991 and 1993, the same pattern of land distribution was found in 1995, using FSP data sets (see Table 4.1). In 1991, the proportion of total land holdings retained by the lowest quartile of households was within the range of 7-10% percent, using the two measure of land holding above described. At the same time, 42-53% of land holdings were retained by the top 25% of smallholders. Although few changes were noticed in 1995, the bottom 25% of smallholders in each district studied remained in the same relative position with low shares (9-13%) of the total land holdings. Essentially, this result suggests that indeed, there appear to still be factors leading to inequalities in land distribution in the study areas.

To investigate whether land access was only a problem in these study areas in northern Mozambique, the 1996 National Agricultural Survey data can also be used. A total of sixty districts were grouped according to the Greater Agricultural Region (GAR.) to which they belong.[11] According to this grouping, the Monapo/Meconta districts fall

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GAR is defined as a large region with similar soils and climate, where a particular crop or group of crops is predominant. The total area occupied by the main crop or main group of crops ranges from 50-100% of the total cultivated area. GARs are designated by a system of digits, where the first digit is the GAR and the second number refers to subdivisions based upon the percent of land under the main crop(s).

into the GAR 1.1, while Ribaué and Montepuez fall into the GAR 4 and finally Angoche falls into in the GAR 1.2.[12]

Tables 4.2 and 4.3 show that the pattern of land distribution throughout Mozambique in 1996 followed that found in Nampula and Cabo Delgado by MOA/MSU in 1991 and again in 1995. The proportion of total land holdings retained by the lowest quartile of households was within the range of 5-9% using any of the two measures of land holdings (per household and per household adult equivalent basis). At the same time 51-65% of land holding were retained by the top 25 percent of smallholders. Distribution is slightly less unequal in the lower density central regions, but in the South inequality is at least as great as in the North. Hence, these results suggest that: i) the land access problem appears to exist even outside the areas where the FSP has been studying smallholder access to land and ii) the land access problem seems to remain even though the war is over.[13]

Recall that the FSP study area, as was explained in the second chapter, is of relatively high population density, relatively good soils, and strong competition for land, not just

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12 For a detailed match between districts and GARs, see appendix 1.

13 For land distribution (cultivated area and total area) on both per household and per household adult equivalent basis by province, see appendix 2. Land distribution pattern by province is similar to that found when land holding is aggregated on a GAR basis.

Table 4.2 Land (cultivated and Fallow) per Household by Surveyed Districts of Agro-Ecological Regions of Mozambique, 1996.

Greater Agricultural Regions and Predominant Crops	Area per household								
	Ha					% of area held			
	Overall	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
NORTH									
GAR 1.1 (Cassava)	2.08	0.47	1.20	2.22	4.57	6	14	26	54
GAR 1.2 (Cassava)	2.34	0.59	1.45	2.44	5.00	7	16	26	51
GAR 2 (Sorghum)	2.59	0.67	1.05	1.88	6.56	4	14	17	65
GAR 3 (Maize)	2.48	0.74	1.34	2.34	5.58	9	11	21	59
GAR 4 (Sorghum and Cassava)	2.43	0.59	1.27	2.31	5.39	5	15	24	56
CENTRAL									
GAR 5.1 (Maize)	1.79	0.58	1.10	1.70	3.97	8	15	27	50
GAR 6 (Maize)	2.26	0.71	1.38	2.25	4.79	9	14	24	53
GAR 7.1 (Sorghum)	2.41	0.56	1.12	2.01	5.80	6	10	23	61
GAR 8 (Sorghum and Maize)	2.36	0.77	1.45	2.23	4.84	8	16	22	54
CENTRAL-LITORAL									
GAR 9.1 (Rice)	1.83	0.48	1.03	1.77	4.08	7	14	24	55
SOUTH									
GAR 10.1 (Maize)	1.95	0.39	0.90	1.85	4.76	5	12	23	60
GAR 10.2 (Maize)	3.31	0.68	1.69	3.25	7.63	5	13	24	58

Note: Q = Household land area quartile.

Sources : 1996 National Agricultural Survey.

Carvalho, Mario (1970) - Agricultura Tradicional de Moçambique.

Table 4.3 Land (cultivated + Fallow) per Household Adult Equivalent by Surveyed Districts of Agro-Ecological Regions of Mozambique, 1996.

Greater Agricultural Regions and Predominant Crops	Area per Household adult equivalent								
	Ha					% of area held			
	Overall	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
NORTH									
GAR 1.1 (Cassava)	0.68	0.14	0.36	0.64	1.57	5	13	24	58
GAR 1.2 (Cassava)	1.06	0.23	0.57	0.90	2.56	5	14	22	59
GAR 2 (Sorghum)	0.84	0.22	0.38	0.66	2.16	6	12	20	62
GAR 3 (Maize)	0.78	0.20	0.39	0.67	1.83	6	12	22	60
GAR 4 (Sorghum and Cassava)	0.88	0.23	0.45	0.75	2.07	7	13	21	59
CENTRAL									
GAR 5.1 (Maize)	0.60	0.18	0.31	0.51	1.39	8	13	21	58
GAR 6 (Maize)	0.65	0.18	0.37	0.63	1.42	7	14	24	54
GAR 7.1 (Sorghum)	0.63	0.16	0.32	0.55	1.47	7	13	22	58
GAR 8 (Sorghum and Maize)	0.63	0.19	0.41	0.63	1.29	8	16	25	51
CENTRAL-LITORAL									
GAR 9.1 (Rice)	0.54	0.16	0.32	0.50	1.19	7	15	23	55
SOUTH									
GAR 10.1 (Maize)	0.46	0.08	0.21	0.38	1.16	5	10	22	63
GAR 10.2 (Maize)	0.98	0.17	0.42	0.84	2.50	4	11	22	63

Note: Q = Household land area quartile.
Sources : 1996 National Agricultural Survey
Carvalho, Mario (1970) - Agricultura Tradicional de Moçambique

among smallholders but also from outsiders as well (mainly Joint Venture Companies and large commercial farmers). This compares to other regions of the country with lower population pressure and seemingly lower competition for land among households. Thus, there would be reason to expect that land access problems would not be as serious in other areas of the country with lower population density and less competition from outside demands for land. However, data do not support this view.

4.1 Relationship Between Land Holdings and Smallholder Welfare

1991 Nampula Smallholder Survey results suggested that household incomes were very low in Ribaué, Monapo and Angoche. Average incomes per adult equivalent were the lowest in Ribaué (less than US$45) where land holding were the largest, and highest in Angoche (slightly more than US$70) where land holdings were the smallest. However, incomes and consumption within each district were strongly and positively associated with land holdings (Tschirley and Weber, 1994). This distinction is key: though mean areas varies across districts, land size also varies a great deal across households within a district and this variation is strongly associated with variations in income.

The remainder of this section will examine whether land holdings in 1995 continued to play such a predominant role in household welfare, specifically household income.

4.1.1 Model of Household Welfare

This section presents an econometric model designed to examine more carefully the relationship between household income and land holdings. The model and the data are similar to those used by Strasberg (1997) who defined household income as:

> "the net value of income earned by resident household members from January to December 1995 (...). It includes retained production, agricultural sales, off-farm labor sales and micro-enterprise income, less the cost of purchased agricultural inputs and non-family labor".

This same definition is applied to the present study. The objective of the regression model is to undertake new analysis to try to measure to what extent land holdings are important in determining household income. One model is estimated separately for each of the three study zones (Monapo/Meconta, CARE and Montepuez). The model is:

INCOME PER CAPITA = f(ASSETS, STRUCTURE, INFRASTRUCTURE, CASH CROPPING CATEGORY)

where,

ASSETS is a vector of household asset variables:

AREA_LAB is cultivated plus fallow land per adult laborer without any exclusion of any land borrowed (mainly land from the Joint Venture Companies namely LOMACO, SODAN and SAMO)

L_QUAL is the percentage of the farm size considered very fertile by smallholder

NCASHEWP Number of productive cashew trees as of September 1995

CASH CROPPING CATEGORY is a vector of household cash cropping category variables:

HIGH_INB 1 if high-input block cotton participant
0 otherwise

HIGH_IND 1 if high-input dispersed cotton participant
0 otherwise

LOW_IND 1 if low-input dispersed cotton participant
0 otherwise

HIBM 1 if high-input block maize participant
0 otherwise

STRUCTURE is a vector of household structure variables:

AGEHHH Age of head of household

EDUCMAX Maximum years of education, includes any household member > 15 years

INFRASTRUCTURE is a vector of village level variables

VILXX1..n Village level dichotomous variables. These variables are incorporated in the model to control for variation in infrastructure across villages, such as road quality, market access, water resources, availability of maize milling services, and distance to JVC supply depots that may affect productivity[14].

Given the typical form of income, a log-linear functional form was chosen, requiring that the coefficients of continuous variables be interpreted as the percentage change in the dependent variable given a unit change in the independent variable. In case of a dichotomous variable the percentage change implied by the coefficient, β, is equal to $\exp^{\beta -1}$.

4.1.1.1 Income Model Results and Interpretation

Regression results show good performance of the model in terms of explanatory power. Based on the adjusted r-squared, the model explains 50 percent of the variation in capita income per in Montepuez, 51 percent in Monapo/Meconta and 27 percent in the CARE-OPEN zone (Tables 4.4 to 4.6).

As far as this study is concerned, the key result is primarily related to the effect of land holding on per capita income. In each zone, total area controlled by smallholders is

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14 See MAP/MSU FSP, 1996 for a complete inventory of infrastructure for each village.

highly significant (p-value =0.00), is positive and has a large impact on household income per capita. The effect of increasing per laborer land holding by one hectare results in an average increase in per capita income of between 35 and 47 percent across

Table 4.4. Income Regression Results, Montepuez.

Variable	Dependent Variable			
	Household Income per Capita			
	B	Std. Error	Beta	P-Value
AREA_LAB	0.28	0.05	0.35	0.00
LQUAL	-0.02	0.14	-0.01	0.88
HIGH_INB	0.61	0.26	0.14	0.02
HIGH_IND	1.06	0.41	0.13	0.01
LOW_IND	0.25	0.08	0.16	0.00
HIBM	0.50	0.27	0.12	0.06
AGEHHH	8.0E-4	0.00	0.01	0.81
EDUCMAX	0.05	0.02	0.16	0.00
VILMTZ1	0.28	0.14	0.13	0.04
VILMTZ2	-0.17	0.14	-0.08	0.24
VILMTZ3	-0.58	0.15	-0.26	0.00
VILMTZ4	0.09	0.14	0.04	0.54
VILMTZ5	-0.31	0.13	-0.16	0.02
VILMTZ6	-0.39	0.14	-0.19	0.01
Constant		0.19	3.47	0.00
Adj. R squared		0.50		
F-stat		15.03		

Source: 1995, FSP data set.

Table 4.5. Income Regression Results, Monapo/Meconta.

Variable	Dependent Variable			
	Household Income per Capita			
	B	Std. Error	Beta	P-Value
AREA_LAB	0.27	0.04	0.42	0.00
LQUAL	2.0E-3	0.12	1.0E-3	0.99
NCASHEWP	7.4E-4	1.0E-3	-0.04	0.48
LOW_INB	0.22	0.13	0.19	0.10
LOW_IND	0.24	0.11	0.21	0.03
AGEHHH	-1.5E-3	3.0E-3	-0.03	0.61
EDUCMAX	-0.02	0.01	-0.07	0.24
VILMM1	-0.43	0.18	-0.19	0.02
VILMM2	0.05	0.18	0.02	0.77
VILMM3	0.35	0.11	0.23	0.00
VILMM4	-0.17	0.13	-0.10	0.20
VILMM5	-0.28	0.14	0.16	0.05
VILMM6	0.50	0.13	0.30	0.00
VILMM7	-0.10	0.13	-0.05	0.45
VILMM8	0.36	0.18	0.15	0.04
Constant		0.21	3.78	0.00
Adj. R squared		0.51		
F-stat		12.14		

Source: 1995, FSP data set.

Table 4.6. Income Regression Results, CARE-OPEN.

Variable	Dependent Variable			
	Household Income per Capita			
	B	Std. Error.	Beta	P-Value
AREA_LAB	0.33	0.05	0.47	0.00
LQUAL	0.27	0.13	0.15	0.05
NCASHEWP	3.6E-3	2.0E-3	0.16	0.06
LOW_IND	-0.23	0.12	-0.19	0.05
AGEHHH	-9.1E-3	0.00	-0.19	0.02
EDUCMAX	-0.16	0.02	-0.06	0.45
VILCAR1	-0.05	0.15	-0.04	0.71
VILCAR2	0.04	0.15	0.03	0.78
VILCAR3	0.10	0.18	0.07	0.56
VILCAR4	-0.09	0.14	-0.06	0.53
Constant		0.22	3.94	0.00
Adj. R squared		0.27		
F-stat		6.22		

Source: 1995, MAP/MSU data set.

the three study zones[15]. Decreasing land holdings decreases income by the same percentage. This suggests that land-poor households in the study area are not able to make-up for their lack of land through strategies such as selling wage labor, engaging in MSE activities, or increasing the productivity of the land they have. This result

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Strasberg (1997) definition of land holdings excluded all borrowed land the household had (especially from the JVCs) and included this variable in the model along with the number of adults in the household, while this study includes all land under control of the household in the cropping season on a per laborer basis. Thus the coefficients obtained by Strasberg although statistically significant are lower than those found in the present study. This is a clear indication of how robust the models are.

establishes the key role land holdings play in household welfare but seems to be contrary to what some authors have found in different settings of Africa. Indeed, where a more developed off-farm labor markets exists, land-poor households can obtain cash income followed by its conversion into food through food markets. However, Lipton (1985) argues that, although the amount of land held tended not to be correlated with income or consumption, access to at least some land is crucial in determining household well being.

With the still relatively weak state of food, labor and goods markets in the study area, own production of calories becomes more important to households. Strasberg (1997) reports that from 60-84% of household calorie consumption has its origin in own production. These households also need some cash to purchase consumer goods. Thus, most households sell food crops (especially maize grain) during the harvest time, but some of these have to purchase food at higher prices during the hungry season. Table 4.7 shows maize grain sales and purchase prices and maize meal purchase prices in the study zone. Maize was chosen for illustration because it is the main source of calories consumed by households.

Table 4.7 White Maize Grain and White Maize Meal Prices (in US dollars) in the Study Zone, 1994-1996.

Study Zone	Maize Grain		Maize Meal
	Sales Price per Kg at Harvest Time	Purchased Price per Kg at Hungry Season	Purchased Prices per Kg at Hungry Season
Montepuez	$0.093	$0.123	$0.357
Monapo/Meconta	$0.079	$0.105	$0.287
CARE/OPEN	$0.079	$0.215	$0.428

Source: 1995 FSP data set.

In all study zones, maize grain purchase prices during the hungry season ranged from 1.3 to 2.7 times higher than the sales prices during harvest. At the same time, maize meal appears to have had much higher purchase prices than maize grain. In this case, prices are 3.6 to 5.4 times greater than harvest season sales prices of grain. The latter, especially illustrates the difficulties households face to turn cash earnings into food very efficiently.

According to Strasberg (1997), households in the study area rely on labor sales for a minor part (from 3 to 13 percent) of household income. This is consistent with the characteristics of the labor market in northern Mozambique (thin and seasonal), associated with the low daily wage (US$0.45/day).

MSEs also account for a very small share of the net income in the study area. Of the total net income, only 4 to 10 percent is originated from MSEs (Strasberg, 1997).

Overall, Strasberg found that retained production accounted for 47 %, 50% and 59%, respectively, of household income in Montepuez, Monapo/Meconta and CARE/OPEN areas.

4.2 Summary and Conclusions

This chapter used data from multiple sources to analyze changes in land distribution among smallholder households during the period between 1991 and 1996. Results showed that land inequality throughout the country is similar to that found in Nampula and Cabo Delgado and this inequality had changed little four years after the ending of the war. Where income data were available, results also showed that the observed inequality in land distribution is a problem, in that land holdings are a major determinant of household income. Land-poor households face a serious income shortage and thus are also likely to face a critical food security problem, especially in a setting where rural food, goods and labor markets do not function efficiently.

The next chapter will identify and discuss different factors that could lead to inequality of access to land among smallholders.

CHAPTER 5

Factors Affecting Access to Land in the Smallholder Sector

5.0 Introduction

The objective of this chapter is to identify and discuss factors affecting land access within the smallholder sector. These factors will be distinguished according to two general categories: first, factors that are exogenous to the local (or "traditional") system of land allocation; and second, factors that are considered endogenous to it. Considering the study area, exogenous factors will include the presence of some large private concessions, population density, population settlement (nucleated versus dispersed), and characteristics of the family that affect their ability to work (demographic factors), such as female head of household, age, dependency ratio, education, illness and polygamy. Endogenous factors are defined as those which relate to the manner in which the local system of land allocation works. This includes the relation of husband and wife to the local power structure (official and traditional), being native to the area and the clan to which one belongs.

Analysis of variance (ANOVA) will be used to measure the proportion of variation of land area (cultivated plus fallow) due to endogenous and exogenous factors to the local system of land allocation. This is followed by regression analysis to measure the impact of each factor presumably important to land access within the smallholder sector.

5.1 Variation in Land Holdings Within and Across Villages

In a sample from many villages, one might expect a situation where between them there is much variation in land holdings, but within a single village there might be a very little variation, i.e., most of the variation may occur due to different mean land holding in different villages, with a very narrow spread within each village around its mean. A very different situation could have similar means across villages, with much variation within villages. Thus two courses of action may be taken depending whether a large proportion of the variation comes from between or within villages. If a large proportion of the variation is between villages, this result will lead one's attention to factors exogenous to the local land allocation system. On the other hand, if most of the variation is within villages, then greater attention must be focused on the dynamics of land allocation within the local system of land allocation (a mixture of formal and traditional). It is also necessary to know whether or not the proportion of variation is significant or not. Thus, to avoid guesswork or subjective evaluation, an objective criterion is desired. The statistical procedure ANOVA is used in the analysis for this purpose.

The ANOVA allows us to conduct a within-and between-village test of significance among treatment means (i.e. mean cultivated area per labor adult equivalent). The results are given on the basis of the probability, due to chance alone, of finding a difference or differences as large as those obtained. The test of significance is cast in

the form of accepting or rejecting the null hypothesis, or in this case, the hypothesis of no difference. The null hypothesis can be written as:

$$\text{Ho: } \mu 1 = \mu 2$$

meaning that there is no difference between the population treatment means. If the null hypothesis is rejected, we have the alternative hypothesis H1. This hypothesis can take the following form:

$$\text{H1: } \mu 1 \neq \mu 2$$

the hypothesis that the population means do differ. The decision rule in the ANOVA is based on the F-statistic test or p-value.

Table 5.1 shows results of ANOVA test for the sampled villages in Northern Mozambique. Note that these are the same villages described in Chapter 2 (villages in Montepuez, Monapo/Meconta and CARE/OPEN zones).

The very low p-value obtained in the ANOVA test indicates that mean land holdings do, indeed, vary between villages. In other words, the null hypothesis of no difference in the treatment means is rejected. Yet in proportional terms, 83% (9449.6/11328.9) of the total variation in land holdings is due to factors within the villages, while 17%

Table 5.1 Analysis of Variance of Land Area (cultivated+fallow) per Household Labor Adult-Equivalent (weighted), in Northern Mozambique, 1995.

Source of Variation	Sum of Squares	Degrees of freedom	Mean Square	F-Statistic	P-value
Between Villages	1879.312	20	93.966	342.379	0.000
Within Villages	9449.556	34431	0.274		
Total	11328.868	34451			

Source: 1995 FSP data set.

(1879.3/11328.9) is due to factors between villages. In our interpretation, then 83% of all variation in land holdings is associated with factors endogenous to the local systems of land distribution.

These results are contrary to the conventional wisdom. Indeed, one would expect much more variation in land holding between villages instead of within villages. Location (being near a main road), presence of a large private company (JVCs), soil fertility, being near the district capital, are factors among others, that would attract many people to these villages, increasing population pressure on the land and leading to lower mean land holdings. In villages with very little infrastructure, located in remote areas, far from the main roads, the expectations would be for less population pressure and higher land holdings. On the other hand, considering that "... African societies often claim that tribal (traditional) authority or practice assigns to each family, or to each adult male, a cultivable area settled or slush-and-burn of a size dictated by the family's needs or by its available family labor" (Lipton, 1985), the expectation would be little variation within the village. These results constitute a clear indication of the

existence of both endogenous and exogenous factors leading to inequalities of land distribution in the sampled area (shown in the previous chapters). The obvious question to raise is: what are the factors leading to such inequalities of land distribution?

The remainder of this chapter will identify and examine the factors playing a predominant role in land allocation using regression analysis.

5.2 Model of Household Determinants of Land Access

This section presents an econometric model designed to examine more carefully the determinants of household land holding. The objective is to measure to what extent both endogenous and exogenous factors are important in determining household access to land. The 1995 FSP data set is used.

Three sets of variables hypothesized to contribute to household access to land are included in the model. Land access is defined in terms of cultivated plus fallow hectares per labor adult equivalent in the household. One model is estimated for each of the three study zones (Montepuez, Monapo/Meconta and CARE/OPEN). The model is specified as follows:

Cultivated +fallow ha per AE =f(demo, exo, endo) where,

Demo is a vector of household demographic variables:

AGEHHH, Age of the head of the household

DEP_RAT Dependency ratio. Dependants are defined as those household members less than 10 years old and greater than 65 years old. The remaining members are assumed to be the working force within the household. Thus, the dependency ratio is calculated as a ratio of the dependents divided by the number of adults lying between 11 to 64 years old.

FEMHHH 1 if female headed household

0 if male headed household

EDUCMAX Maximum years of education, includes any household member > 15 years old

POLYGAMY 1 if male is polygamous

0 otherwise

ND_ILL Total days sick among household laboring adults in the period September 94-August 95.

Exo is a vector of factors considered exogenous to the local system of land allocation including:

POPSETTL 1 if the population settlement is nucleated

0 otherwise

VILLXX1...n Village level dichotomous variables. It has the same definition as in

Chapter four. This variable is intended to capture variations in infrastructure across villages.

Endo is a vector of factors considered endogenous to the local land allocation system as they were measured during the 1995 FSP survey and prior to the field work for this study including:

FEM_RTA 1 if female related to traditional authorities

0 otherwise

MALE_RTA 1 if male related to traditional authorities

0 otherwise

FEM_NAT 1 if female is a village native

0 otherwise

MALE_NAT 1 if male is village native

0 otherwise

POWERTA[16] 1 if the role of traditional authorities in the village is considered strong

0 otherwise

DPB 1 if a JVC or private owns a block within the village to which smallholders do no have access,

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16 Traditional authorities were classified as "strong" or "weak" according to the role they play in the decision making process in the village. Thus, the traditional authority was classified as "strong" if they have an active and influential role in the village.

0 otherwise

A linear form was chosen, requiring that the coefficients of continuous variables be interpreted as the change in the independent variable given a unit change in the independent variable. In the case of dichotomous variables, whether or not it assumes the value of zero, it will affect the constant term of the regression (the intercept).

5.2.1 Land Model Results and Interpretation

Regression results show poor performance of the model in terms of explanatory power although there is overall significance at the 5 percent level in Monapo/Meconta and at the 1 percent significance level in both Montepuez and CARE/OPEN. Based on the adjusted r-squared, the model explains only 8 of the variation in land per labor adult equivalent in Monapo/Meconta, 9 percent in CARE/OPEN and 13 percent in Montepuez (tables 5.2 to 5.4).

The variables most often significant are AGEHHH (age of head of household) and MALE_NAT (male native to village). AGEHHH is significant and positive in Montepuez, and positive and nearly significant ($p=0.15$) in Monapo/Meconta. This suggests that older heads of households have generally been successful in obtaining more land relative to household size over the years. MALE_NAT is positive, significant and large (based on the size of the standardized Beta) in Monapo/Meconta and CARE-OPEN. This result is interesting, suggesting as it does that households are

better-off in terms of access to land when the male does not follow the traditional matrilineal practice of moving to his wife's village. Note also that in Montepuez,

Table 5.2 Land Regression Results, Montepuez.

Variable	Dependent Variable: Land per Labor Adult-Equivalent			
	B	Std.Error	Beta	P-Value
AGEHHH	0.02	5.0E-03	0.26	0.00
FEM_RTA	-0.06	0.13	-0.03	0.68
MALE_RTA	0.26	0.15	0.15	0.10
DEP_RAT	0.16	0.15	0.08	0.28
EDUCMAX	-0.02	0.02	-0.05	0.49
FEM_NAT	-0.13	0.14	-0.08	0.35
MALE_NAT	0.11	0.17	0.66	0.51
ND_ILL	-1.4E-03	1.0E-03	-0.09	0.19
POLYGAMY	0.18	0.14	0.09	0.20
FEMHHH	0.58	0.54	0.07	0.29
VILMTZ1	0.33	0.22	0.15	0.14
VILMTZ2	-0.26	0.22	-0.12	0.23
VILMTZ3	-0.52	0.24	-0.21	0.03
VILMTZ4	0.20	0.25	0.09	0.43
VILMTZ5	-0.22	0.19	-1.06	0.25
VILMTZ6	-0.17	0.19	-0.08	0.37
Constant	0.63	0.34		0.07
Adj. R-squared	0.138			
Significant-F	0.00			

Source: 1995 FSP data set .

Table 5.3 Land Regression Results, Monapo/Meconta.

Variable	Dependent Variable			
	Land per Labor Adult-Equivalent			
	B	Std.Error	Beta	P-Value
AGEHHH	0.01	0.01	0.13	0.15
FEM_RTA	-1.6E-03	0.20	-1.0E-3	0.99
MALE_RTA	-1.6E-03	0.20	-1.0E-3	0.99
DEP_RAT	0.16	0.12	0.11	0.17
EDUCMAX	-0.02	0.03	-0.06	0.51
FEM_NAT	0.03	0.22	0.01	0.91
MALE_NAT	0.60	0.22	0.30	0.01
ND_ILL	-6.0E-04	1.0E-03	-0.05	0.55
POLYGAMY	0.26	0.26	0.08	0.32
FEMHHH	0.50	0.40	0.11	0.21
VILMM1	-0.08	0.33	-0.03	0.81
VILMM2	-0.56	0.37	-0.18	0.13
VILMM3	-0.11	0.38	-0.03	0.77
VILMM4	-0.44	0.31	-0.20	0.16
VILMM5	-0.39	0.35	-0.16	0.27
VILMM6	-0.20	0.33	-0.08	0.55
VILMM7	-0.36	0.34	-0.15	0.29
VILMM8	0.01	0.34	0.01	0.97
Constant	0.90	0.40		0.03
Adj. R squared		0.08		
Significant-F		0.03		

Source: 1995 FSP data set.

Table 5.4 Land Regression Results, CARE/OPEN.

	Dependent Variable			
	Land per Labor Adult-Equivalent			
Variable	B	Std.Error	Beta	P-Value
AGEHHH	5.0E-03	5.0E-03	0.08	0.34
FEM_RTA	-0.03	0.20	-0.01	0.88
MALE_RTA	0.03	0.20	0.02	0.87
POWERTA	-0.22	0.14	-0.12	0.13
POPSETTL	-0.15	0.14	0.09	0.30
DEP_RAT	0.16	0.11	0.11	0.17
EDUCMAX	-0.03	0.03	-0.08	0.33
FEM_NAT	0.03	0.22	0.02	0.88
MALE_NAT	0.57	0.21	0.29	0.01
ND_ILL	-7.0E-04	1.0E-03	-0.06	0.46
POLYGAMY	0.24	0.25	0.08	0.33
FEMHHH	0.52	0.39	0.12	0.19
Constant	0.83	0.35		0.02
Adj. R squared		0.09		
Significant-F		0.001		

Source: 1995 FSP data set.

though MALE_NAT is not significant, MALE_RTA is both positive and significant, suggesting that here the male's relationship to the structure of authority is more important than that of the female. Both these results may suggest that traditional matrilineal structures and practices have become less important in determining land access than they presumably were in the past. Such a conclusion must, however, remain tentative pending further research.

No other variables in the analysis were significant, except for some village dummies. DPB, the variable indicating presence of blocks of land to which smallholders did not have access, was insignificant in all cases and caused multicollinearity problems with other variables, and so was eliminated.

Overall, the results of the model only explained part of the problem of land access in northern Mozambique.

5.3 Summary and Conclusions

This chapter used 1995 FSP data set to identify and discuss factors affecting land access among smallholder households. An ANOVA test was used to identify the proportion of total variation in land holdings that was within villages (hypothesized to be associated with factors endogenous to the local system) versus across villages (hypothesized to be due to factors exogenous to the local system of land allocation) while regression analysis was applied to help measure the degree of importance of each identified factor in land access. Results showed that most of the variation in land access is within villages, suggesting that there are factors within the local system of land allocation which are leading to disparities in land allocation among smallholder households. The regression model used in the three study zones explained only a small portion of total variation in land holdings, but the significant results for male native and male relationship to local authority were very suggestive. The overall low explanatory power is likely to be associated with omitted variables that will be identified in the next

chapter. These results lead to the need to conduct further analyzes of the local system of land allocation to better understand the dynamics of the process. Thus, the next chapter will be dedicated to an in-depth case study.

CHAPTER 6

Dynamics of the Local Land Allocation System

6.0 Introduction

Evidence from the 1991 MOA/MSU FSP study showed that land holdings were the principal determinant of income in Nampula province. The 1995 FSP data set for Nampula and Cabo Delgado showed the same pattern of distribution of cultivated land, and showed that land holdings had significant, positive, and large effects on household income across all three study zones. The 1996 National Agricultural Survey showed that within the smallholder sector land was still relatively unequally distributed both across the agro-ecological zones of the country as well as in all provinces of Mozambique. This finding was consistent with what was found in 1991 and 1995 for Nampula province.

Based on these findings, a key question remains: why do many households fall in the category of low area cultivated per adult equivalent, while others do not? Or in other words, why are there land and income-poor households in a setting of apparent land abundance?

In this chapter we suggest and discuss the importance of other factors that might be influencing land access in the smallholder sector. These factors are namely: 1) the evolution of the traditional system of land tenure; and 2) the interaction between the

traditional and the formal systems of land tenure. Given the fact that the evidence from earlier analysis was not sufficient to distinguish the relative importance of these factors, additional field work was conducted to try to understand social and economic dimensions of the traditional system of land allocation. Particularly, this chapter analyzes aspects of the organization of the Macua society, particularly those that may affect land access and tenure in Northern Mozambique. This is an attempt to explain the ongoing land paradox, by turning to a better understanding of relevant social and political organizational aspects of the Macua society. As part of this effort, an in-depth case study was conducted in the study zone.

The remainder of this chapter is organized as follows: first we present results of field measurements; second, we describe relevant characteristics of the organization of the Macua society; third, we describe the customary land tenure system in Northern Mozambique; and fourth, we analyze the dynamic of the local land allocation system though a case study in Varrua (Meconta District). Finally, we draw conclusions from the major findings.

6.1 Field Measurements

To verify the accuracy of total land area households declared in their possession, we proceeded with measurement of fields of smallholders in four selected village of the total village sample.

Results in Table 6.1, show a positive and significant correlation coefficient between declared and measured field size in the four villages. The correlation coefficients for Varrua and Mepine (Nampula province) were higher than those found in Nacuca in Nassimoja (Cabo Delgado province). A study by Raffi, Freire and Fernandes (1994) found similar correlation coefficients for Monapo and Montepuez districts. Thus, one can safely conclude that smallholders have a fair perception of the amount of land they have access to, implying that chances for misreporting land areas available were low. Consequently, households reporting themselves as land-poor are indeed likely to be in that situation.

In Tables 6.2 and 6.3, households are ranked by total declared area, then ranked again by total measured area. Results from Montepuez show little changes in rankings and total measured area. In Monapo/Meconta, rankings and mean holdings change more. Yet even here, the two households with least reported area remain on the top. The spread between households with least and most land decreases slightly in Montepuez after measuring, while in Monapo/Meconta it increases. Overall, the results of the land measurement exercise confirm the earlier conclusion that land holdings are markedly unequal within the smallholder sector in the area studied.

Table 6.1 Correlation Coefficient Between Total Field Area Declared and Measured, in Varrua and Mepine (Nampula Province) and Nacuca and Nassimoja (Cabo Delgado Province), 1997.

Village	Correlation Coefficient between Declared versus Measured Fields Area
Varrua (n=37)	0.9272
Mepine (n=39)	0.8134
Nacuca (n=55)	0.6263
Nassimoja (n=33)	0.5199

Note: All correlation coefficient are significant at 0.01 level.
Source: 1997 FSP data set.

Table 6.2 Comparison of Declared and Measured Areas in Nacuca and Nassimoja, Montepuez, 1997.

Household Number	Total Declared Area (hectars)	Ranking by Declared Area	Total Measured Area (hectars)	Ranking by Measured Area
1	1.00	1	1.13	1
2	2.50	2	2.84	3
3	3.75	3	2.05	2
4	4.50	4	4.00	4
5	4.50	5	4.07	5
6	4.75	6	4.14	6
7	5.00	7	7.53	12
8	5.25	8	4.21	7
9	5.50	9	4.89	9
10	6.00	10	4.66	8
11	6.25	11	6.20	10
12	6.75	12	7.16	11
13	8.00	13	8.46	14
14	12.00	14	7.75	13
15	12.00	15	10.72	15
Mean	5.85		5.32	

Source: 1997 FSP data set.

Table 6.3 Comparison of Declared and Measured Field Areas in Varrua and Mepine, Monapo/Meconta, 1997.

Household Number	Total Declared Area (Hectars)	Ranking by Declared Area	Total Measured Area (Hectars)	Ranking by Measured Area
1	0.56	1	0.22	2
2	1.00	2	0.21	1
3	1.18	3	1.76	5
4	2.16	4	1.92	7
5	2.56	5	1.80	6
6	3.50	6	1.05	3
7	4.00	7	1.22	4
8	4.13	8	2.37	9
9	4.90	9	2.13	8
10	5.25	10	2.97	10
11	7.85	11	6.75	11
12	15.00	12	15.60	12
Mean	4.34		3.17	

Source: 1997 FSP data set.

6.2 Organization of the Macua Society

One of the best ways to understand any aspect of a given people is to adequately know the social and political structures that frequently guide its human relations. One way of visualizing the Macua society is as a series of progressively more aggregated social units related by matrilineal, *uxorilocal* (after marriage, the male moves to the female's village) and exogamic ties (members from the same clanic segment are encouraged to not marry each other). The smallest unit in this system is the *N'toko*, a family unit composed of husband, wife and children. Several *N'toko* are organized into an *N'loko*.

The head of the *N'loko* is the principal *Atata*, and only his nieces, nephews and their mothers (his sisters) from the *N'toko* are members of his *N'loko*. The husbands from each of the *N'toko* are considered outsiders. Several *N'loko* are further aggregated into a *Nyhimu*, or lineage, lead by the *Humo*[17].

Many *Mahimu* (plural for *Nyhimu*) living near each other constitute a Chefatura[18]. Many *Mahimu* live within the Chefatura, with several *N'loko* per *Nyhimu* and several *N'toko* per *N'loko*. The head of the Chefatura is often called *Mwene* in Macua terminology. Each *Mwene* has next to him a very important woman, his elder sister from the same mother, called *Apwyamwene*. She does not have visible power, acting more as an advisor for the *Mwene* and as guardian of the traditions of the lineage.

The organization of the Macua land units mirrors the social organization just described. Each principal *Atata* (head of an *N'loko*) has authority over a *Matala*, a contiguous block of land within which live the various *N'toko* comprising his *N'loko*. Within his *Matala*, the principal *Atata* allocates to each *N'toko* a smaller area of land called

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In some areas, instead of *Humo*, *Mwene* is the next authority above the principal *Atata* (Note that the terminology changes from region to region within the territory where the Macua society is found. For simplicity, we will refer to *Mwene/Humo* with equal level of importance. Also, there is a Macua term *Ulupale* or *Atokwene*, to distinguish important *Mamwene* (plural for *Mwene*).

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Small territorial unit centralized in a *Mwene/Humo* from the dominant *Nyhimu*, who represents all *Mahimu* in the territory. In Mozambique, Chefaturas were destroyed by the Portuguese to originate the Regulados (Departamento de Historia da UEM, 1982). Note too that not all members of a given *Nyhimu* live in the same Chefatura; a *Nyhimu* is typically spread over several Chefaturas and even Regulados.

N'tala. This too is a contiguous block of land that the *N'toko* has the right to work. This land is allocated by the *Atata* to his nephews, not to the husbands who head each *N'toko*. Thus, the smallest land area within this system is the *N'tala* worked by the *N'toko*, followed by the *Matala* over which the *Atata* has authority. Above this, the Chefatura is the area of land under the authority of the *Mwene*, within which live various *Nyhimu*.

According to Martinez (1989), this power structure is purely Macua without any external interference. However, the arrival of the Portuguese led to colonization of the country. The colonialists used the power structure already in place and introduced three more important positions: *Regulo*, *Cabo*, and *Chefe*.

The *Regulo* is in charge of the total group of *Chefaturas* in a *Regulado* while the *Cabo* is in charge of only a subset of the Chefaturas within the land under control of the *Regulo*. It is important to mention that the *Regulo* appeared as the result of the colonialist needs to find someone to be a mediator between them and the local communities[19].

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19 The newly approved Land Law does not recognize explicitly the role of such traditional authorities, although it recognizes the role of the local communities.

6.3 Customary Land Tenure Systems in Northern Mozambique.

The customary sector in Northern Mozambique consists of smallholders under a matrilineal ethnic group (lineages or *Mahimu*). In this system, land had traditionally been passed from mother to daughters or from family leader to female family members.

A newly married couple often resided permanently in the wife's village, even though this is not always required. In this case, the couple obtain land from the wife's principal *Atata*. However, if the couple moves to reside at the husband's village, then the husband traditionally acquired land from the extended family leader (principal *Atata*) in his village. This land, however, cannot be passed to his children; it would pass to a nephew or niece through the principal *Atata*.

In contrast, in a patrilineal system, not common in northern Mozambique, the man claims land ownership and can pass on all land developments to his children. This situation mostly occurs in Mozambique in areas South of the Zambezi River[20].

In Macua areas of the North, there are various modes of transfer and tenure arrangements that influence tenure security and the amount of land one has access to. The first mode of transfer occurs when the husband resides in the wife's village

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20 The Zambezi River is frequently used as a natural limit of the matrilineal North and patrilineal South.

(uxorilocal marriage) only on a temporary basis. If this is the case, some husbands will retain rights to land in their own village[21], and may have more than one wife.

The second mode is concerned with rights to land following the death or divorce of a spouse. In the case where the widow or widower continues to reside in the deceased's village, continued land rights are not all guaranteed. These situations can reduce the incentives for a man to work in his wife's village. Whenever either a death or divorce becomes likely, the non-native spouse may have to leave the village to ensure access to land. If the widow/widower remarries a native of the village, he/she does not have to leave the village. This is more common for a widow, who according to Macua tradition, should marry one of her brothers-in law, and stay in the village.

The third mode of land transfer and tenure occurs when land passes from uncles (*Atata*) to nephews or nieces, bypassing the children.

In a typical Macua village, there are also communally held lands (*preserved area*), controlled by the principal *Atata* which appear to be virtual open-access resources, with few rules on user group membership.

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21 The way these husbands can obtain land will be explained later in this Chapter.

The fourth mode of transfer and tenure is when the principal *Atata* cedes use rights over specific tracts of land to families and family leaders. New land could be opened through request to family leaders and traditional chiefs. This can be the case of the newcomers. The procedure is as follows: the newcomer head of the household contacts the traditional structures (represented by *Regulo, Mwene, Atata, Humo*) and/or the official authorities (represented by the Village's President, Head of Production, and Village Secretary) to be introduced in the village and to express their desire to live in the village. Then, the *Regulo* indicates one *Atata* (the one he knows controls a substantial area of preserved land) expecting him to cede a use right of part of the land area under his (the principal *Atata*) control to the new family. This is a temporary arrangement which may cease anytime[22]. Given the fact that this arrangement is precarious, the head of the household will likely search for a more secure land arrangement. This implies that after a year or two, the newcomer will be able to find a place where a more permanent land access condition can be achieved. Usually, the household will find this type of land at the outer limits of the *Regulado*[23] and, sometimes in the neighboring *Regulado*. This is one of many strategies a household has to increase the amount of cultivable land they have access to.

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22 Some reason for ceasing the arrangement could be bad behavior by the new family or that the *Atata* needs to allocate the portion of land to his direct family member.

23 Territory under control of *Regulo*.

Linked to land access, there is a saying among the Macua that: "luck follows lineage" (*A sorte vai com o Nyhimu*). According to information obtained from local sources (village group interviews), in each village, there can be found more than one coexisting lineage. As shown in Table 6.4 there are 7 coexisting lineages in Varrua. Some lineages are regarded by locals as "strong" while others are seen as "weak". Local opinion was also that when it comes to land issues, those belonging to a "strong" lineage are more likely to get access to more and better land, compared to other households that belong to a lineage considered "weak". So, if one was born in a "strong" *Nyhimu*, the likelihood of obtaining more and better land is believed to be higher.

How does a certain *Nyhimu* achieve the category of being considered a "strong" *Nyhimu*? Local leaders suggested that there were several ways to achieve such status and this is linked to the sources of traditional power. There is always one *Nyhimu* that assumes supremacy in a determined lineage territory. Consequently, its Chief assumes the leadership above all other *Mahimu*. In the illustrated cases of *Regulado Varrua*

(Table 6.4) there are two *Mahimu* considered strong: Lapone and Lucazi. But, how does a certain *Nyhimu* became the most powerful/influential? In the past, there were at least two ways to reach that position: longevity in land occupation and conquering of land.

Table 6.4 Number of principal *Atata* by *Nyhimu* affiliation and by Head or Leader's Name in Varrua, Nampula Province, 1997.

Nyhimu (Lineage)	Head or Leader's Name				Total
	Varrua	Mucuaranha	Totela	Tchotcho	
Lapone	6	3	5	4	18
Mulima	4	1	2	1	8
Lucazi	1	2	-	-	3
Mali	-	3	-	1	4
Selege	-	3	-	1	4
Iatche	-	-	1	-	1
Mavele	-	-	1	1	2

Source: 1997 FSP data set.

Longevity in land occupation was the most common way of emerging and obtaining legitimation of traditional power. The *Nyhimu* that first settled in a certain territory assumed the legitimacy over that territory and all other incoming *Mahimu* were expected to recognize the legitimacy of the first *Nyhimu* and respect it (Irmã Paula, 1997). Conquering of land: In a situation where agricultural production was still the most important economic activity, households who did not possess sufficient good quality land were envious of those who possessed the best land. In the past, possessing arable land also increased the social prestige of the lineage leader as well as increased military capability and the potential desire to conquer territories of other lineages. As a result, economic and political power would be reinforced through a force of power to take over land.

The social/biological necessity of exogamic marriages sometimes resulted in women being kidnaped from a different *Nyhimu*, followed by their integration in a new lineage. Men were also kidnaped as a means to reinforce the traditional authority of the lineage leader. The kidnaped were most of the time treated as slaves (*Epota*, in Macua). Any child resulting from a marriage of a female *Epota* with a male *Epota* would be considered *Epota* too. Given matrilineal conceptions if descent, a child born from a female *Epota* with a male *Neti* (free man, non-*Epota*), would also be considered *Epota*. The major implication of this process is that *Epota* did not have the right to possess land. *Epotas* usually would cultivate land of their "owners" (being the owners the lineage leaders) in exchange for food. Exceptionally, *Epota* were able to escape their condition. To do so, some *Epotas* would kidnap men and women to show tribute to their "owners", which in turn would let the *Epota* free and allocate then a piece of land, although it was always small with respect to land holdings of others members of the dominant lineage.

6.4 Land Distribution and Access According to the Traditional System in Northern Mozambique

The process of land distribution and access in the smallholder traditional system appears to be very complicated and extremely influenced by kinship. In broad terms land allocation according to the traditional customary system can be distinguished as described bellow.

Temporary Access: This is the first stage of gaining access to land by an individual. Within a household, the head of a household chooses a small plot inside his/her (*N'tala*) field and gives it to his/her son/daughter on a temporary basis. The plot works as an "experimental field".

Transitory Access: When a son/daughter reaches the age of 13-15, the head of household increases the amount of land given on a temporary basis, to a much larger portion, with the objective of increasing household production. This land comes from the portion the household preserved for expansion purposes. A young boy/girl is allowed to use up to 50 percent the total production for their own benefit. Eventually, the piece of land given will constitute part of the future inheritance. In this process the young individual can obtain up to a 1/4 hectare (ha) plot or field. This is an arrangement to prevent future land disputes within the household.

Definitive Access: This usually occurs when the individual reaches about the age of 18. The head of the household contacts the chief of his residential zone in order to declare that his son is ready to assume responsibilities, meaning that he can farm and constitute his own family, therefore needing land. In turn, the chief contacts a principal *Atata* that he knows who has "preserved land" and asks him to provide land to the young man. A variation on this process occurs when instead of a principal *Atata* conceding land, it is the father who actually provides it. The land given to the young man is also on a definitive basis. In this latter case, the amount of land conceded usually varies up

to ½ ha. In cases of female headed households, the principal *Atata* assumes the responsibility of the process of land allocation.

Assuming that the young man has constituted a family, as this family grows, the need for more land becomes a necessity. However not all the time is it possible to open-up a contiguous field. Sometimes contiguous fields available may not be suitable for crops the household intends to plant. Thus, if the household's existing land is located in an area where he can expand the field, before doing so, the head of the household must ask for permission to his/her nearest neighbor (in case he/she were the first in the zone), or just inform them about his intention to expand his field in case there is plenty of land between the two. Alternatively, if this is not possible, then the household can: (a) turn in to the wife's *Atata* and ask for more land; (b) ask the village chief (*Regulo*) for more land; (c) go to a neighboring *Regulado* and ask for land from that respective *Regulo*. As a result, a single household will have two or more cropped fields located in distinct areas either within or outside the *Regulado* in which the household lives. Overall this process can be called land accumulation.

The processes above described are very much influenced by the kinship to which one belongs. Being from a "weak" *Nyhimu* might prevent one to gain access to more and better land, either within or outside the *Regulado* in which he/she lives.

6.4.1 Other Means of Gaining Access to Land

Beside the means to access land as described above, smallholders have an alternative option of gaining access to land from a Joint Venture Company (JVCs) operating in their areas. However, this access is not automatic. Smallholders have to go through a registration process and if they are lucky, skillful and/or have good connections with those managing this land, they can get some. However, this is a temporary arrangement that can last, sometimes, only one crop season. In these fields, smallholders are expected to cultivate a specified crop as specified by the JVC. In the following crop season, all smallholders with the desire to obtain more land through this system, must go through the same procedure as in the previous crop season.

The last arrangement which households theoretically have to obtain land, is through the official system. But the burden they have to go through is so large and can last for months if not years until they get the piece of land they need. This arrangement is mostly used by large, private sector actors.

In sum, there are various arrangements for land distribution and access operating in Northern Mozambique, especially in rural areas. These arrangements range from traditional (matrilineal and patrilineal) to official (JVCs and official land registration). Although all these arrangements are in place, not all households have access to the desired amount of land, especially according to the amount of labor and the number of individuals to feed in the household.

6.4.2 Institutional Factors Contributing to Inequality in Land Access

Discussion with local informants always brought us back to the saying: "luck follows the lineage (*Nyhimu*)" (*A sorte vai com o Nyhimu*). We asked those in the groups to explain this saying. They immediately brought it down to the level of *N'loko*: "If you are born in a relatively poor *N'loko* it is difficult to become rich (obtain relatively large amounts of land)". When asked about the reasons for this; it appeared that most of the time a poor *N'loko* would belong to a *Nyhimu* considered weak. Thus, the principal *Atata* would have a small *Matala* under his control. So, being born in a poor *N'loko* means that your principal *Atata* has less land that he can make available to all eligible members of his *N'loko*.[24]

We asked if a *Matala* can be expanded (and the reverse), and the unanimous answer was "that would be extremely difficult". The only way for a *N'loko* to get more land would be for individual members to leave the *Matala* and obtain land within the *area preservada* (this could be within the *Regulado* or in a different *Regulado*). Doing this, they would still be recognized as part of the original *N'loko*.

These efforts to acquire more land highlight a second arrangement at work maintaining inequality: the reception that males receive from the *Regulo* and *Chefe*, depending on

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24 Why do some *N'loko* have so little land to begin with? Others came back to the original saying: "A sorte é dada por Deus" (luck is given by God). They also used the word "natureza" several times, implying that one's position, originally given by Deus, comes to be seen as part of the person's character (*natureza*).

the *N'loko* they come from. As an example, the key informants where asked to consider the hypothetical case of two individuals, one from a "poor" *N'loko*, and other from a "rich" *N'loko*. It was indicated that both were recently married, and the husbands want to open fields that will be their owns, assuming that their wives already have field from their principal *Atata*. (Note also that this example should apply equally to a *N'toko* from a poor *N'loko* that wants to obtain land outside their *N'tala*). Key informants were asked who would have priority, and who would get the most land? The answer, which we paraphrase, was very clear: "the individual from a rich *N'loko* would have priority and have access to more land". When asked why, the answer came back to "*natureza*": "the *Regulo* would think that the "poor" individual would not be able to adequately farm the land". They were also asked why would he think this "*natureza*" would make a difference? Answer were simply the person from the better-off *N'loko* would be attended first and better by the *Regulo*.

A third factor appears to be related to what might be called traditional coping arrangements based on the extended family. Key informants were asked "what would happen if someone from a poor *N'loko* nevertheless managed to get, for example, a cotton field and make a good profit, attempting to reinvest that in cotton or another income-generating activity?" The response was that the members of the extended family would very quickly come to that person requesting assistance (essentially food and cash), and soon that profit would be used-up by being spread-out among many in

the *N'loko*. The effect of such traditional coping mechanisms dissipating savings has been noted by other researchers in other countries (Lipton, 1983).

6.5 The Case Study

Detailed case studies were conducted in four villages, namely: Varrua, Mepine (Nampula Province) and Nacuca and Nassimoja (Cabo Delgado Province). The choice of these villages was based, among other factors, on:1) the proportion of households falling into the category of land and income-poor;2) the presence of a JVC (type of cotton production scheme), 3) the role of the traditional authority in land distribution.

Given the exceptional quantitative and qualitative data collected in Varrua, this case became the first to be presented. Lessons from this case whenever possible will be generalized to other villages. That is for instance, the role of the traditional structure found in Varrua has a lot in common with the role of traditional structures in Mepine.

Following the case of Varrua, Mepine, Nassimoja and Nacuca cases will be presented in this order. In each case, attention is first devoted to the role of the traditional authorities followed by a discussion of land distribution at the village level. Finally, land distribution is also discussed at the household level, with emphasis on the cases of land and income poor households.

6.5.1 Varrua

Varrua village is located in Meconta district of Nampula, in an area of a *Regulado* that holds the same name as the village.

6.5.1.1 Traditional Structure in Varrua

The traditional structure in Varrua does not differ from that previously described in this chapter. In fact, Varrua shows the most complete traditional structure (see Figure 6.1) because it includes most of the possible variations one can find when studying the structure and organization of the Macua society. The influence this structure exerts on land access and distribution is the subject of discussion in the following subsection.

6.5.1.2 Land Distribution in Varrua

Within the land area under the control of Cabo Varrua, three phases of land identification and measurement were carried-out. First, each Chief (in charge of a *Chefatura*) was identified and his *Chefatura* measured using a GPS. The results of the analysis are shown in Figure 6.2. Second, within each *Chefatura*, each principal *Atata* was identified and his *Matala* measured using measuring tapes and compasses.

Figure 6-1 Structure of the Traditional Authority in Varrua, Nampula Province, 1997.

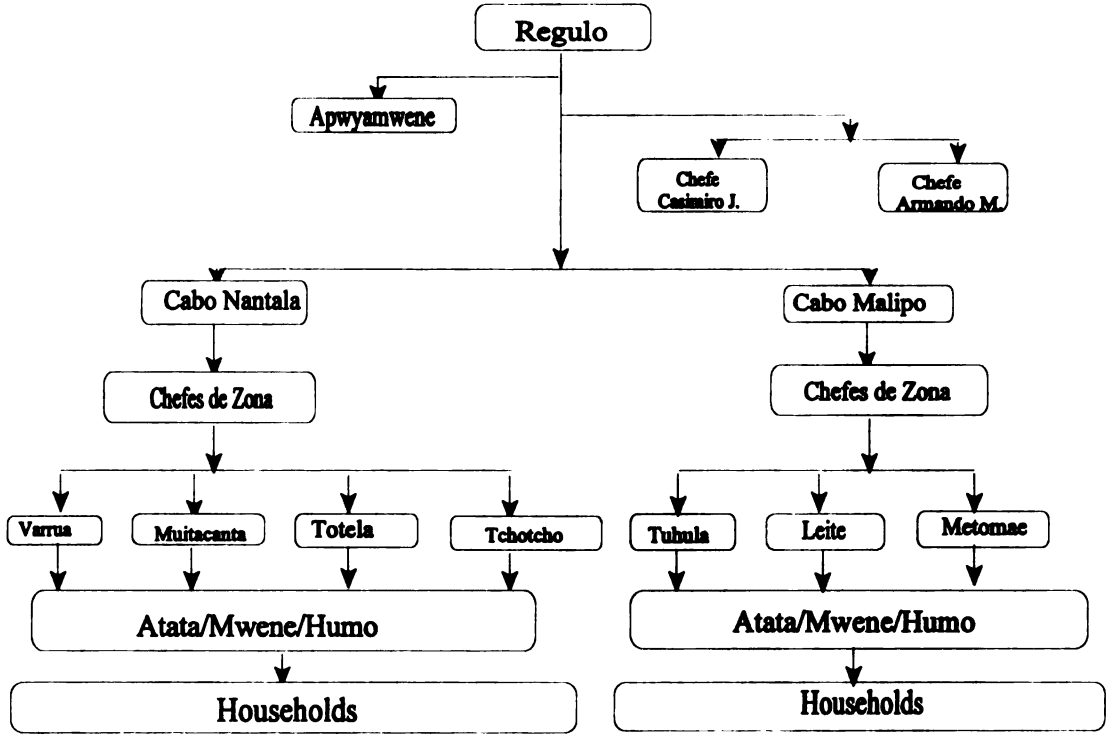
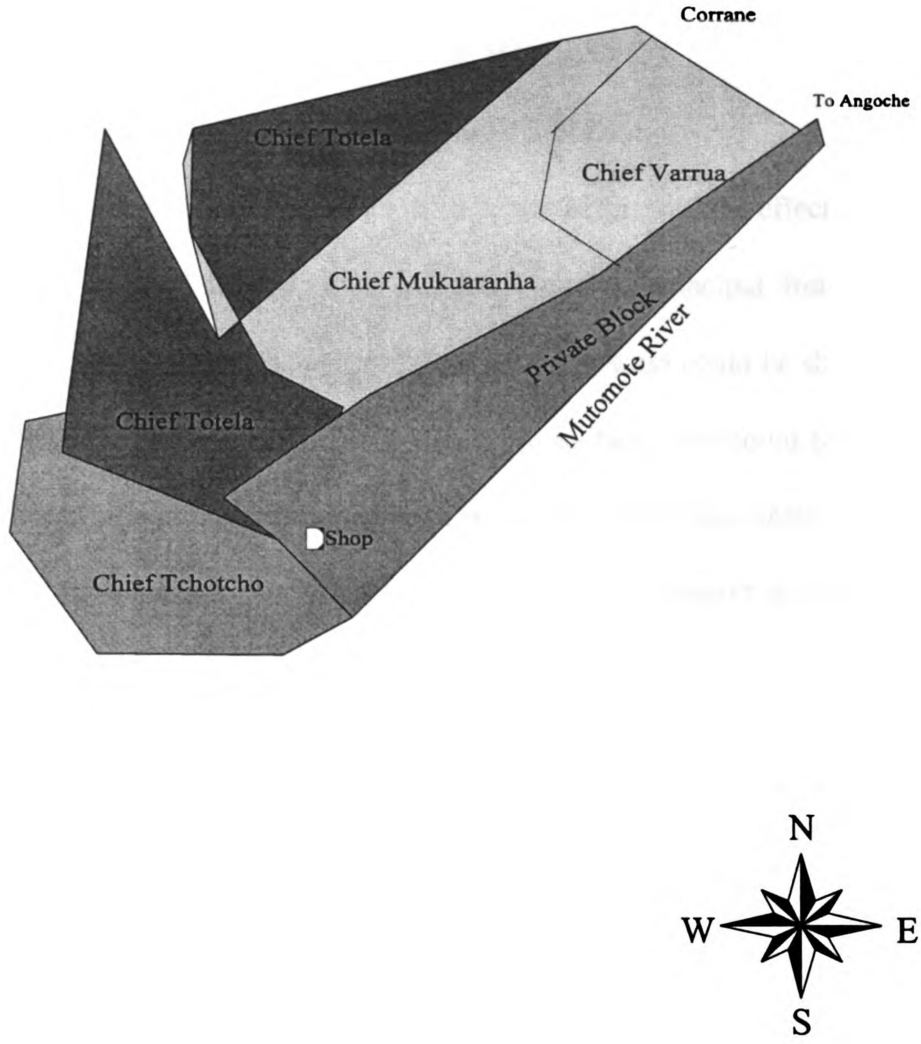


Figure 6-2 Areas of Influence of Chiefs in Cabo Varrua, Nampula, Mozambique, 1997.



Finally, each head of household (*N'toko)* within the each *Matala* was interviewed and key pieces of information were obtained:

- How many people comprise his *N'toko*?
- How many total fields does the *N'toko* possess?
- Of this total number of fields, how many are:
    - inside the *Matala* of the principal *Atata*
    - within the JVC block outside the *Matala*,
    - outside the *Matala* and not in the JVC block

The reason for obtaining this information was to better understand the effect of the size of the *Matala*, and by extension the power and prestige of the principal *Atata*, on the amount of land available to a household. If the size of a *Matala* could be shown to significantly affect the amount of land available to a household, this could be persuasive evidence of mechanisms within the traditional system that create and perpetuate inequality of access to land. Results of these measurements are presented in Table 6.5[25].

Figure 6.2 shows the total land under control of the Cabo Varrua. It comprises territories of four *Chefaturas* designated by their Chief's name. The figure really only shows three *Chefaturas*. This is due to the fact that *Chefatura* Mucuaranha was

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25 There was insufficient time to measure each of the fields belonging to each*N'toko*. Such data would allow a quantitative assessment of the effect of *Matala* size on land access by households. Obtaining such data is a top priority of future research.

Table 6.5 Land Distribution by *Chefatura* in Varrua, Nampula Province, 1997.

	Chefatura			
	Varrua	Tchotcho	Mucuaranha	Totela
1. Size of *Chefatura* (Ha)	49.4	176.4	201.3	304.0
2. Mean size of *Matala* (Ha)	4.5	22.1	16.8	33.8
Maximum size (Ha)	17.3	42.9	108.9	77.6
Minimum size (Ha)	1.3	8.4	2.5	6.2
3. Land per capita within *Matala* (Ha/capita)	0.23	0.79	0.59	0.96
4. Fields within *Matala* (%)	25.7	52.0	36.9	38.8
5. Fields outside *Matala* (%)	74.3	48.0	63.1	61.2
Fields in block within *Regulado* (%)	55.3	13.9	43.9	55.5
Fields outside *Regulado* (%)	44.7	86.1	56.1	44.5

Source: 1997 FSP data set.

subdivided in two to accommodate the *Regulo* who lives within this territory. Thus, the land area where the *Regulo* is also Chief was included in the *Chefatura* Mucuaranha. Why? According to local informants, if officially recognized, the *Regulo* will move his residence to a different place where the Portuguese built a house for him. Thus, the control he now exercises over part of *Chefatura* Mucuaranha will eventually, be handed back to Chief Mucuaranha. Given this arrangement, it turns out that the *Regulo* is a Chief and Cabo (important to note that in addition to these duties, the *Regulo* is also the Village President).

How is land distributed within the area under control of *Cabo* Varrua? Table 6.5 shows land distribution and land access arrangements among *Chefaturas*[26]. It appears that the mean size of *Matala* a is positively correlated with the size of *Chefatura*. With exception of the *Chefatura* Tchotcho, land per capita within the *Matala* increases as the size of the *Matala* increases. The result is that the *Atatas* with relatively large *Matala* will have more land to distribute among households. The case of *Chefatura* Tchotcho of a relatively high ratio of land per capita might be associated with relative location. Compared to other Chefaturas, Tchotcho is located far from the main existing infrastructures (road, market, hospital, rural shops), being in that way less attractive. In contrast, *Chefaturas* located nearby the infrastructures tend to have smaller minimum and mean sizes of *Matala* and low land per capita ratio (Varrua and Mucuaranha). Due to this fact, smallholders in Varrua and Mucuaranha are the ones with highest percentage of fields outside the *Matala*.

Households in Varrua and Totela have the highest percent of fields in the block within the *Regulado*. These fields are located in the private block and subject to the registration procedures previously mentioned. In Varrua, households tend to have fields in the block because of the small amount of land readily available within the *Matala*, while in Totela soil quality is the major reason for having land outside of the

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26 Chefatura Varrua was deliberately included (although not included in Figure 6.1) to accommodate a *"de facto"* created by the *Regulo* residing within the areas of Cabo Nantala, *Chefatura* Mucuaranha. Thus, for purposes of land distribution by *Chefatura*, the latter was divided in two: Varrua and Mucuaranha.

Matala. In the latter *Chefatura*, most of the land is covered by old cashew trees. The shade of the cashew trees prevents smallholders from cultivating crops under the trees.

In sum, the situation of land arrangements and distribution in the area of Cabo Varrua, follows both the traditional and the official system of land allocation. Smallholders have a diversified means of obtaining land. However, we still find the problem of some smallholders being land and income-poor. In the hypotheses formulation for regression analysis in Chapter 5 (Monapo/Meconta), among other factors, female relation to traditional authorities and illness where, *a priori,* considered important in determining the amount of land smallholders have access to. However, the regression results showed no significant relationship between these variables and total land per capita in households. As explained, due to lack of awareness at the time of data collection, female spouse relationship to the *Atata Principal* was not included in the questionnaire. But evidence from the group interviews revealed that illness and female relation to the principal *Atata*, were indeed important in determining land access among smallholders. For illness, the argument encountered was that elderly couples lack the ability to farm large amounts of land, even if they had access to it. The argument for including female spouse relation to the principal *Atata* is related to the matrilineal system in place. In the course of the interviews other factors were pointed out as important in determining land access such as: the concept of "strong" versus "poor" *Nyhimu*; soil quality, in particular in *Chefaturas* Tchotcho and Totela; perceived lack of interest in agriculture; and the existence of a private block.

(Perceived lack of interest in agriculture): there are many people (especially among the youth) who it is said appear to not like to farm. It is also said that many of them prefer to engage in small businesses even though they would not get enough to feed themselves and their families. In these cases, much of the time it appears they have to rely on remittances from their parents.

(Private blocks): According to local sources, in the past the land area which today is in private blocks used to be part of the land under the customary system of land allocation. It alone occupies an area of about 500 hectares which is equivalent to 40 percent of the total area under the control of Cabo Varrua. Only a small part of this block is being used by smallholders, under supervision of a JVC. At least 60 percent of the 500 hectares is not utilized at all, being perceived by locals as belonging to a local shop owner. Allegedly, if this portion returns to control of the Regulo Varrua, there would be no excuse to have land poor in the village.

6.5.1.3 Current Situation of Land-and Income Poor Households in Varrua

What is the current situation of those households found in the sample to be land and income poor in Varrua? In the sample, there were three households in the category of land and income poor. One of the households was made up of one female member, who by the time of the field work, was suffering from heart disease. As a result she was not available for interview. The other two households were made up of 5 and 6 members which for confidentiality purposes will be designated households A and B.

The head of the household A is native to the village. According to him it was an exceptional case that when he married he did not abandon the village to live in his wife's village. She is from a neighboring *Regulado*. The head of household B is 28 years old and is native of the village. As in case of household A, the wife is also from a neighboring *Regulado*.

Table 6.6 shows the type of land access arrangements and the respective tenure security for households A and B. Results shows that the two households, and in particular A, in terms of land access, are both involved in different types of arrangements, ranging from a traditional system (matrilineal and patrilineal) to a more official arrangement through a JVC. Note that, in a supposedly predominant matrilineal system, the patrilineal system is also in place. The two heads of household said that they were not secure in either living on or farming land belonging to their wives principal *Atata*.

Despite having more fields, household A seems to be in a worse situation than B. The majority of the A household members are children less than 6 years old, and the head of this household is suffering from a chronic illness. He seems to not have any hope of seeing his family standards of living improving, due to his labor scarcity.

Table 6.6 Sample Household Land Access in Varrua Among Land and Income-Poor Households, Nampula Province, 1997.

Household	Field Number	Access Arrangement	Do you feel secure with this field?	Observations
A	1	Private block	No	This individual and others unanimously feel that they could be denied access to this land at any time.
	2	Other regulado	No	The household head abandoned this field because it belongs to his wife.
	3	Outside *Matala*	No	His wife inherited from her uncle (*Atata)* who lived in the village.
	4	Outside *Matala*	Yes	He inherited from his paternal uncle
	5	Inside *Matala*	Yes	This field is located around his house
B	1	Inside *Matala*	Yes	Inherited from his father
	2	Outside regulado	No	Obtained through a classical matrilineal fashion
	3	Private Block	No	This individual and others unanimously feel that they could be denied access to this land at any time.
C	1	n.d	n.d	n.d
	2	n.d.	n.d	n.d
	3	n.d.	n.d	n.d.

Note: n.d. : data not available.
Source: 1997 FSP data set.

Meanwhile, household B faces much better prospects. But before that, let us focus on the history of the fields number 1 and 2. Field number 1 came from his father when the latter died. His father had received a block of approximately 6 ha during colonial times, which was a common practice at the time.

With three sons, each received about 2 ha upon the death of the father; an example of patrilineal inheritance in a matrilineal area. The head of this household indicated that this land is outside any control of the *Regulo* and other authorities in the village, and no one can take it from him. He feels more secure about this land. However he cannot pass this land to his sons. Upon his death, the land will pass back to his brothers and to their families. His sons will eventually get land from other types of arrangements.

Household B, field number 2 was received in the classical matrilineal fashion. It lies outside of the *Regulado* Varrua. His wife, who is from the neighboring *Regulado*, had recently obtained the field from her principal *Atata*. The head of the household made it clear that this land belongs to his wife, not to him. Should the couple ever separate, the field will remain with his wife.

Contrary to the prospect from the head of household A, the head of household B considered that he had at least two alternatives to gain more land and greater security. He referred to a block of 4-5 ha that he received from his principal *Atata*, but about which he felt very insecure. He indicated that the *Regulo* had already given half of it

to another person and indicated that he was concerned that if he were to go there and work the remaining portion, the *Regulo* could also deliver it to someone else at any point. This seems to be a clear example of conflict over land within the smallholder sector. It may stem from conflicts between different inheritance systems.

The other possibility that this household spoke about was of going to a "different principal *Atata* to get authorization to open land in the *mato* (preserved areas)". He would then get title to this land, so that it could really be "his". At the time of the interview, this head of household had not taken any steps in this direction, but he was not clear about how feasible his plan would be to implement.

In sum, household B and his successors appear to be quite vulnerable. The only land over which the household head can be certain of his rights is the 2 ha received from his father, and this land cannot be passed to his sons. While his income situation has improved (he bought a bicycle in the past year), he remains in the land and income poor category, though near the top of the low income category.

6.5.2 Mepine

This village is located in Monapo district of Nampula Province. Traditionally, Mepine is part of the *Regulado* Meta.

6.5.2.1 Traditional Structure in Mepine

The traditional structure in Mepine is similar to that found in Varrua with a slight variation. Instead of *Chefes de Zona*, there are *Capitães*, but their roles do not differ. Compared to Varrua, in this village in particular and the *Regulado* in general, the traditional authorities appear to not have much influence in the decision making process of land distribution. Factors contributing to this situation will be addressed in the following subsection.

6.5.2.2 Land Distribution in Mepine

Regulado Meta is virtually surrounded by several private blocks, including 11,000 ha claimed by SODAN with cotton and sisal history. In addition to that, there is a private block of 450 ha founded in 1930 by a Portuguese *colono*. The latter was in recent years worked by the *Administrador* of Monapo district and now is being claimed by another small commercial farmer.

According to the local informants, households living in the *Regulado* Meta do not have access to much land due to the presence of the above describe private sector. To gain access to more farm land, households have to rely on the land area inside their *N'tala,* or go to a neighboring *Regulado* and ask the authorities for land. Beside this alternative, a few households have managed to gain access to land within the area of the private block, under control of the small commercial farmer. However this arrangement is temporary, and subject to termination at any time. There was a feeling

that the presence of the private sector land prevented households from obtaining good farmland nearby their residence. However, local informants were unanimous in considering that they needed some of the services provided by the private sector firms such as providing inputs and a market for cotton production.

In part this is how they explain the existence of land poor in the regulado in general, and Mepine in particular. As for the land within the *N'tala*, it follows the classical matrilineal mode of transfer, thus not different from the situation in Varrua[27]. The difference is that the *Matala* appear to be smaller, resulting in less land to distribute among households.

Other factors considered important to explain low land and income results were illness which results in reducing the ability to work and age of the head of household. The argument present was the same as for the case of Varrua.

In general, these were the major concerns with respect to land access in the *Regulado* Meta.

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27 In the villages of Mepine, Nassimoja and Nacuca field measurement of *Matala* were not conducted.

Table 6.7 Sample Household Land Access in Mepine Among Land and Income-Poor Households, Nampula Province, 1997.

Household	Field Number	Access Arrangement	Do you feel secure with this field?	Observations
A	1	Private block	No	The owner made it clear that the land could be taken at any time.
	2	Inside *Matala*	Yes	This field he inherited from his uncle who passed away. He was appointed the new *Tata*
	3	Outside *Matala*	No	His wife inherited from her uncle who lived in the village.
B	1	Private block	No	By the time of the interview this field had already been taken back by the small commercial farmer
	2	Private block	No	The owner made it clear that the land could be taken at any time.
	3	Inside *Matala*	Yes	This field he inherited from his uncle who passed away. He was pointed the new *Atata*
	4	Outside *Matala*	No	This field fall in to the category of matrilineal mode of transfer, belonging to his wife.
C	1	Inside *Matala*	Yes	This household is female headed. She has been sick for quite a while. For this reason her husband abandoned her with one young son. She is only farming one small plot. Most of the food she gets from her brother who happens to be the Village Secretary.
	2	Inside *Matala*	Yes	
	3	Inside *Matala*	Yes	
D	1	Inside *Matala*	Yes	This household lives in the limits of the Regulado Meta. This is another case o land inheritance from *Atata*.
	2	Inside *Matala*	Yes	"
	3	Inside *Matala*	Yes	The owner made it clear that the land could be taken at any time.
	4	Private Block	No	

Source: 1997 FSP data set

6.5.2.3 Current Situation of Land-and Income Poor Households in Mepine

Table 6.7 shows the types of arrangements of sampled households by field and respective tenure security. In Mepine within the sample, four households were identified as land and income poor. All households, with one exception, use more than one land access arrangement. Those households using the official land arrangement are the ones with tenure security problems. Household C, although with all land within the *N'tala*, being female headed and thus with tenure security, still is in the category of land poor. As stated in the table, this fact is associated with her health status.

Households A, B and D inherited land from their principal *Atata*. However, it appears that it did not improve their situation. According to these households, they have several fields but they are all small.

In sum, in Mepine, the major factor constraining land access among smallholders is the presence of large private interests.

6.5.3 Nassimoja

This village is located in Montepuez district of Cabo Delgado Province. Originally it was formed in mid-60's as part of the Portuguese efforts to control the population during the Mozambique liberation struggle for independence.

6.5.3.1 Traditional Structure in Nassimoja

Given the nature of its origin, the traditional authorities in this village do not have much power. In the village, the traditional authorities work more as a consultation groups for the village's President when the latter needs advice on how to solve conflicts. The village belongs to the *Regulado* Pulupo. The relative unimportance of traditional authorities in this area means that the traditional units of land distribution, such as *Matala*, play a relatively unimportant role in determining land access.

6.5.3.2 Land Distribution in Nassimoja

There is no large scale private production immediately adjacent to the village with exception of one *privado*. Despite this, most of the smallholders have their fields located far away from the village. In some cases smallholders have to walk for about 45 minutes (one way) to reach the best agricultural land, where their fields are located. Nearby land has been left in fallow and some was occupied by displaced persons during the war. In addition, conflicts have emerged in the past provoked by local individuals who, without any consultation, start farming other's fallow land situated nearby the village. During the interviews, these individuals were mentioned as "opportunists" and "lazy". Because of their behavior they were in a situation of land poor. Authorities claimed that anyone could get access to land as long as he/she was willing to deal with long walks in order to reach the best agricultural land. It was a consensus, in this village that unless the person was sick, there would be no excuse to be landless or even income poor. According to them, residents have also the opportunity to provide labor

to LOMACO (a JVC located in Montepuez district), which is done by a significant number of households. Thus, one should ask about the situation of the land and income poor in the village.

If a household needs land they should contact the local authorities represented by the village's President and ask him for a piece of land. In turn, the village's President indicates an area within the limits of the village where the household could farm. This type of arrangement is designated "independent open access" and is often definitive. The household is secure about these land, because it falls in the category of "preserved land" described in the case of Varrua, but it is under control of the village's President.

6.5.3.3 Current Situation of Land-and Income Poor Households in Nassimoja

In the household sample of this village, four households were reported as land- and income-poor households. One the households was not available for interview. The head of the household A has two fields and is asthmatic and old (70 years old). His health status and age prevent him from working for consecutive hours. With only two members, the old man is the one who takes care of the field crops, leaving his wife at home. The other two households, B and C, are made up of 7 and 4 members.

Their fields are located an average of 50 minutes walk time from their home. In addition to this fact, the majority of the fields are not located in the same area. The

fields are scattered in various directions, increasing the real walking time from home to, for example, two different fields.

Table 6.6 shows the types of arrangements of sampled households by fields and respective tenure security for households A, B and C. These households are involved in three different types of arrangements: "independent open access", consultation with local authorities, and offer from a relative. Contrary to what was found in Monapo/Meconta villages where households were not secure with all fields, results shown in Table 6.6 indicate that households in Nassimoja are much more secure about the fields use. According to local leaders, this fact is due to the origin of the village which weakened the power of traditional authorities, thus encouraging a more "official" system of land allocation to be in place.

In sum, in one case a major constraint facing land- and income-poor households in this village is, illness. Another factor is more related to the local system and one's decision to farm more land. According to local informants, there is plenty of land to be exploited if one needs it. Yet this research shows that households have to walk significant distances to gain access to suitable land, and good land close to the village has become the focus of conflict. This suggests that, in practice, land is not as abundant and access is not as easy as they are perceived to be by local leaders.

Table 6.8 Sample Household Land Access in Nassimoja Among Land and Income-Poor Households, Cabo Delgado Province, 1997.

Household	Field Number	Time from home to the field (minutes)	Access Arrangement	Do you feel secure with this field?	Observations
A	1	60	"independent access"	Yes	In the near past, this household had three fields. At the time of this study only two fields were cultivated. The third field was given to one of the household's sons. It takes about another 40 minutes walk time to move from one field to another. After opening these two fields the smallholder had to inform the village officials (president and "chefe de producao") about their location.
	2	60	"	Yes	
B	1	1	"independent open access"	Yes	This is a small plot around the house.
	2	20	"	Yes	These fields are located within the administrative limits of the village. The fields are considered "open access" because the smallholder had to identify these pieces of land by himself, although later on he had to inform the village president their location. This practice is common not only in this village but also throughout Montepuez district. The need to inform the village president about the location and area of the fields is viewed as a mean to prevent future conflicts among smallholders.
	3	30	"	Yes	
	4	90	"	Yes	
	5	60	"	Yes	
	6	30	Offered by a relative	Yes	This field was offered by a elder relative of the head of the household. The relative that made the offer is old and sick and cannot farm. The latter is now a member of this household.
C	1	60	Consultation with local authorities	Yes	This household head recently arrived from outside Montepuez. He opened these three fields were opened after a consultation with the village president who indicated an area considered "preserved land" such as found in Nampula.
	2	80		Yes	
	3	30		Yes	
D	1	60	n.d.	n.d.	We were not able to interview this household.
	2	30	"	"	
	3	45	"	"	

Note: n.d.: data not available.
Source: 1997 FSP data set

6.5.4 Nacuca

This is the second village located in Montepuez district of Cabo Delgado Province. The village has its origin in what used to be called "Colonato Portugues[28]" in the early 60's as part of the Portuguese efforts to colonize Mozambique. Like Nassimoja, traditional authorities and traditional units of land distribution are less important here than in studied villages of Nampula.

6.5.4.1 Traditional Structure in Nacuca

Behind the formation of this village, the Portuguese were interested in labor supply for their private farms in the area. Thus, people were forced to migrate from their original areas to a new one, which they are aware is not theirs. The result of this migration was similar to that found Nassimoja, where the traditional authority does not hold much power concerning land allocation. Aside from this fact, the village belongs to Regulado Nantiqui. The *Regulo* lives in Montepuez town.

6.5.4.2 Land Distribution in Nacuca

As stated before, Nacuca was formed with the intention of being a reservoir of labor supply for the Portuguese *colonos* . The village is completely surrounded by LOMACO fields of direct production and fields where they allow smallholders to farm under contract arrangement[29]. Although households, according to each one's skill and

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28 Portuguese settlement in the area.

29 For details see Strasberg (1997).

a bit of luck, can manage to have access to LOMACO fields under contract arrangements, these households are bound to produce cotton on those fields. Thus, if the household wants to diversify its own production, it has to pass through LOMACO fields, which can take about 60 or more minutes, to reach land outside LOMACO's controlled areas. These observations were valid for households in the situation of land- and income-poor in this village who pointed out that the major constraint they face is related to walking time to reach their fields.

6.5.4.3 Current Situation of Land- and Income Poor Households in Nacuca

In Nacuca within the sample, four households were identified as being land- and income-poor. Table 6.9 shows the types of arrangements of sampled households by field and respective tenure security. All fields with exception of two, which were offered by relatives, were obtained through the same land access arrangement, the "independent open access". These fields are located within the limits of the village, but beyond the LOMACO area of concession. In these areas, households identify land which is not in use by anyone. To assure that no one will claim the piece of land identified by the smallholder, it is common in the village that smallholders inform the village president about the location and area of the field. For this reason, households are more confident about the tenure security of the fields obtained through the process just described.

Table 6.9 Sample Household Land Access in Nacuca Among Land and Income-Poor Households, Cabo Delgado Province, 1997.

Household	Field Number	Time from home to the field (minutes)	Access Arrangement	Do you feel secure with this field?	Observations
A	1	60	"Independent open access"	Yes	These fields are located within the administrative limits of the village but are still quite distant. To open these 5 fields, this household had to go beyond the limits of the LOMACO area of concession which surrounds the village, where apparently open access land is located. We use the word "apparent" because the household still has to let the village president ("president da aldeia") know where the fields are located. This practice is common in this village. The need to inform the village president about the location and area of the fields is viewed as a means to prevent future conflicts among smallholders.
	2	60	"	Yes	
	3	75	"	Yes	
	4	60	"	Yes	
	5	60	"	Yes	
	6	50	Offered by relative	Yes	This field was offered by a relative who left the village after the war ended.
B	1	30	"Independent open access"	Yes	These fields are located within the administrative limits of the village. To open these 4 fields, the household had to go beyond the limits of the LOMACO area of concession, where apparently open access land is located, as in case of the household A.
	2	30	"	Yes	
	3	45	"	Yes	
	4	45	"	Yes	
C	1	45	"Independent open access"	Yes	Household access to these fields followed the same process described for households A and B.
	2	60	"	Yes	
	3	120	Offered by a relative	Yes	This field was offered by a relative.
D	1	30	"Independent open access"	Yes	Access to these fields follows the same process as for household A and B, independent access.
	2	90	"	Yes	
	3	45	"	Yes	

Source: 1997 FSP data set.

According to local leaders, the location factor of the fields has a direct impact on their productivity. In fact, fields are located in different directions, often 30 minutes or more from their home. This situation is similar to that found in Nassimoja, another village in Montepuez.

6.6 Summary and Conclusions

This chapter was intended to suggest and discuss the importance of factors that appear to be influencing land access in the smallholder sector. We hypothesized that these factors would likely be related to: 1) the evolution of the traditional system of land tenure: and 2) the interaction between the traditional and formal (official) systems of land tenure. To do so, a general analysis of the organization of the Macua society and its customary system of land tenure was conducted with the objective of understanding the social and political structures of that society, and how it influences the land allocation arrangements.

To verify the accuracy of the total land area households declared in their possession, we measured fields of smallholders in four villages of the total village sample and compared those results to previously declared areas. The correlation between declared and measured area was positive and generally high, and the ranking of households in terms of amount of land did not significantly changed when fields were measured, rather than using former declared areas.

Detailed case studies in four of the total village sample were also carried out, to better understand, why so many households were still in the category of low area cultivated per adult equivalent, while others were not.

Results show that understanding the way the traditional decision making structures operate and interact within the society is important to better understand why some smallholders are in a situation of being land poor. Findings suggest that there is an effect of local social hierarchy on land access. In the Macua society the role of the principal *Atata* was shown to be especially important in the Nampula villages. Table 6.3 suggested that the size of *Matala* that the principal *Atata* has may be a principal determinant of land access among individual households. This specific issue will be the subject of further research.

In villages located in Nampula province, the most important factors determining land access were the power of the traditional authority, the presence of a JVC, illness, and the existence of allegedly "lazy" people. Results also revealed that the traditional structures are more powerful in Varrua and Mepine (Nampula province) than in Nacuca and Nassimoja (Cabo Delgado province). In the latter villages, factors associated with the presence of a large private sector company, associated with the history of the origin of the villages, are the most important in explaining why there are land and income poor. Other factors were, alleged "laziness" and the social pressure to have more fields, even if these are small and highly dispersed.

The next chapter summarizes the objectives, methodologies, and major findings in order to derive implications of the results.

Chapter 7

7.1 Research Problem, Objectives and Methodology

Among Sub-Saharan Africa countries, Mozambique still enjoys a position of relatively low population density. There is considerable conventional wisdom in the country which supports the idea of land abundance and equal access, suggesting that the limiting agricultural production factor is labor. This perception ignores the role of social and institutional factors that influence household access to land in rural areas. Indeed, previous studies by the MAP/MSU Food Security Project have identified the existence of a group of land- and income-poor households in rural Northern Mozambique. If in these rural areas there were many non-farm income opportunities for households, and if labor and food markets functioned efficiently, then land would perhaps not be the dominant factor determining income for all households. However, the situation in rural Mozambique is quite the opposite. Land does play a dominant role in generating income for households. Households with less land available compared to their labor availability, tend to be poor.

This study was aimed to further confirm the existence of a land and income-poor segment in the rural population. It was also to understand the nature and evolution of this group, as well as to try to clarify the factors that are leading to its creation. Finally, an objective was to identify possible implications of findings for the new Land Law in Mozambique.

To address these objectives, several analytical methods were used. Descriptive analysis of existing household data allowed an examination of land distribution and clarification of household position with respect to access to land. Following this analysis, several other analytical techniques were applied. First, analysis of variance helped quantify the relative importance of endogenous and exogenous factors leading to the existence of land and income poor households. Second, regression analysis allowed an estimate of the importance of land holdings in total household income. This technique was also used to attempt to measure the impact of several endogenous and exogenous factors related to household access to land. Finally, in-depth case studies were completed which involved revisiting households studied in prior surveys. These were done in selected villages of Nampula and Cabo Delgado provinces to explore in more detail the land allocation system within the smallholder sector.

7.2 Conclusions

This study has reconfirmed the existence of a significant group of land- and income-poor households in Northern Mozambique. Results also showed that land inequality throughout the country is similar to that found in Nampula and Cabo Delgado, and this inequality appears to have changed little three years after the ending of the war. Analysis of the relationship between land holdings and household income showed that the observed inequality in land distribution is a problem, in that land holdings are a

major determinant of household income. Thus, land poor households face both a serious income shortage and, in all likelihood, a critical food security problem. Results show that understanding the way the customary tenure system and traditional decision making structures operate within the society is important to better understand why some smallholders are land-poor. The role of the principal *ATATA* was shown to be especially important in the Nampula villages. It was shown that the size of *Matala* under the control each of principal *Atata* varies greatly in these villages; that per capita land availability within these *Matala* also varies greatly; and that households in small *Matala* are only slightly more likely to possess fields outside their *Matala* than households in large *Matalas*. We therefore hypothesize that the size of *Matala* is a key determinant of total land availability at the household level, and suggest focusing further research efforts on this issue. This traditional structure of land access had relatively little importance in the Cabo Delgado villages, in part because of the historical factors which down played the role of traditional processes in these areas.

Results in the Nampula villages were striking in that fields within the *Matala* were the only ones that land-poor households indicated they felt secure about. Fields outside *Matala* were nearly always seen as easily alienable by others.

Other factors also influence land access in both areas. In villages located in Nampula province, these factors include the presence of a JVC, illness, and, according to local leaders, the existence of "lazy" people. This concept of people who are lazy

"preguiçoso" and do not wish to work hard in agriculture was continually mentioned by village leaders in both provinces. We simply report these perceptions while noting that the study identified other, more concrete factors which may be more helpful in explaining the observed inequality in land access.

Factors related to historical social hierarchies in the area were also explored. We considers these to be potentially important factors in a deeper understanding of the reasons for the observed inequality in land holdings. The existence in the past of *Epotas* (slaves) is one of these factors. According to village leaders, *Epotas* and their descendants, with few exceptions, did not have the right to possess land. Also linked to land access, local leaders referred to the saying "a sorte vai com o *Nyhimu*", meaning that being born in a "strong" *Nyhimu* increases the likelihood of gaining access to more and better land. Results also revealed that the traditional structures are more powerful in Varrua and Mepine (Nampula province) than in Nacuca and Nassimoja (Cabo Delgado province). In the latter villages, factors associated with the presence of a large private sector company, and with the history of the origin of the villages, are the most important in explaining why there are land and income poor. Other factors noted by village leaders were "preguiçoso" (existence of "lazy" people), and the social pressure to have more fields, even if these are small and highly dispersed.

7.3 Implications

This and other studies are building a growing body of evidence that smallholder access to land is an important development issue in Mozambique that warrents greater attention. This study also reveals that very careful and detailed analysis is needed to quantify the nature of the land access situation, and to understand the traditional decision making processes which have established existing ownership and land use rights within the smallholder sector itself.

Importantly, the newly approved Land Law in Mozambique establishes that local communities should play a significant role in the management of natural resources. Local communities are defined as a group of families or individuals that have the aim of safeguarding their common interest through the protection of living areas, farming areas whether cultivated or fallow, forest sites of cultural importance, pasture, water sources, and areas of expansion.

While the important role of local decision making is welcomed and warranted, it is not yet clear who exactly will take part in the local committees of land management, who will head these committees, how to draw the limits of the land of the local community, what criteria will be used to identify members of the local communities, nor how to secure at the local level land access for all members, without discrimination. Given the likely fact that the process of identifying local communities will necessarily pass through a balance of power at the grassroots level, the present research results suggest

that it is important that the role of all actors involved in land distribution, including those of traditional authorities, be better understood. This is necessary not only to protect the rights of the local communities but also to ensure and protect access to land by all household within these communities. This study represents one step in this direction.

7.4 Future Research

It will be important in the future to much more fully analyze the effect of the size of the *Matala*, and by extension the power and prestige of the principal *Atata*, on the amount of land available to a household. If, on a more wide scale basis, the size of the *Matala* is shown to significantly affect the amount of land available to a household, it will be persuasive evidence of mechanisms within the traditional system of land allocation that create and perpetuate inequality of access to land.

Detailed and careful anthropological and economic research is needed into the nature and effects of local social hierarchies on land access. This research should identify to what extent the past existence of *Epota* influences current land access patterns; and should shed more light on the dynamics and practical importance for current land access of the perception that luck follows lineage "a sorte vai com o *Nyhimu*".

APPENDIX ONE

Share Cropping and Number of Cashew trees and Coco by Districts and Greater Agricultural Region

APPENDIX TWO

Land Distribution per Household and per Household Adult Equivalent by Province.

Appendix A2.1 Cultivated and Total Land per Household by Provinces and Quartile, Mozambique, 1996.

PROVINCES	Cultivated Area-Hectares/Household					Total Area-Hectares/Household				
	Overall Mean	Quartiles				Overall Mean	Quartiles			
		Q1	Q2	Q3	Q4		Q1	Q2	Q3	Q4
		----------Hectares per household----------								
NIASSA	1.80	0.49	1.06	1.70	3.86	2.39	0.52	1.16	2.18	5.26
CABO DELGADO	1.63	0.43	1.01	1.69	3.50	2.26	0.52	1.22	2.23	5.09
NAMPULA	1.62	0.42	1.06	1.74	3.26	2.49	0.56	1.40	2.43	5.53
ZAMBEZIA	1.35	0.33	0.85	1.38	2.85	2.16	0.43	1.04	1.82	5.35
TETE	1.85	0.50	1.07	1.76	4.07	2.11	0.53	1.10	1.89	5.04
MANICA	2.19	0.75	1.36	2.10	4.71	2.51	0.73	1.41	2.29	5.53
SOFALA	2.22	0.66	1.36	2.14	4.74	3.05	0.67	1.46	2.43	7.63
INHAMBANE	2.51	0.57	1.42	2.45	5.63	3.76	0.74	2.08	3.78	8.43
GAZA	2.32	0.52	1.21	2.34	5.23	2.74	0.53	1.27	2.55	5.89
MAPUTO	2.00	0.33	0.84	1.63	5.28	2.56	0.33	0.86	1.70	7.30
MOZAMBIQUE-National	1.80	0.46	1.07	1.80	3.90	2.54	0.54	1.31	2.33	5.95

Source: 1996 National Agricultural Survey.

Appendix A 2.2 Cultivated and Total Land per Household Labor Adult-Equivalent by Province and Quartile, Mozambique, 1996.*

PROVINCES	Cultivated Area -Hectares/Adult Equivalent					Total Area-Hectares/Adult Equivalent				
	Overall Mean	Quartitles				Overall Mean	Quartitles			
		Q1	Q2	Q3	Q4		Q1	Q2	Q3	Q4
	----------Hectares per adult equivalent----------									
NIASSA	0.58	0.15	0.33	0.54	1.29	0.76	0.19	0.39	0.68	1.78
CABO DELGADO	0.60	0.16	0.34	0.56	1.35	0.82	0.20	0.44	0.70	1.96
NAMPULA	0.57	0.15	0.34	0.58	1.24	0.89	0.19	0.46	0.79	2.13
ZAMBEZIA	0.43	0.10	0.23	0.42	0.95	0.69	0.12	0.30	0.53	1.81
TETE	0.52	0.15	0.30	0.51	1.11	0.61	0.15	0.32	0.54	1.46
MANICA	0.58	0.19	0.36	0.58	1.21	0.65	0.19	0.39	0.64	1.39
SOFALA	0.61	0.18	0.38	0.60	1.30	0.88	0.19	0.42	0.65	2.26
INHAMBANE	0.79	0.14	0.37	0.69	1.95	1.18	0.21	0.54	1.03	2.94
GAZA	0.53	0.12	0.26	0.49	1.28	0.62	0.12	0.29	0.57	1.50
MAPUTO	0.52	0.08	0.21	0.39	1.40	0.62	0.09	0.22	0.42	1.73
MOZAMBIQUE-National	0.56	0.14	0.31	0.53	1.27	0.80	0.17	0.39	0.68	1.99

Source: 1996 National Agricultural Survey.

*Labor Adult Equivalent =

AGE	GENDER	AE FACTOR
7-8		0.3
9-12		0.5
13-15		0.7
15-54	Female	0.85
15-54	Male	1.0
55+		0.7

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