The term "village" as used herein has the same meaning as the term "community" used elsewhere.

Schematic of process.

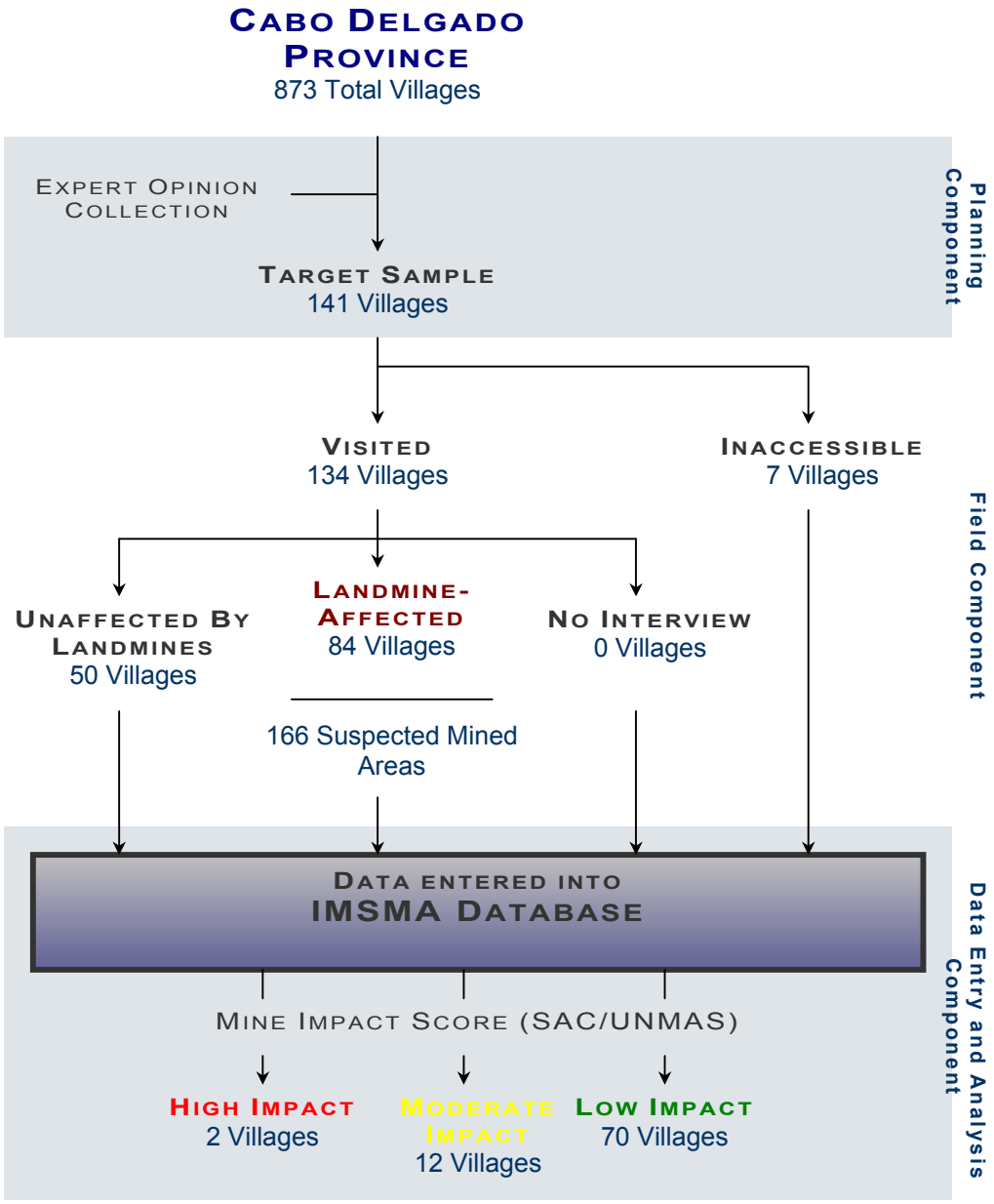

FIGURE 1.

The Mozambique Landmine Impact Survey (MLIS) visited 15 of 17 Districts in Cabo Delgado. The Island of Ibo and Cidade de Pemba were not visited, as they were considered by Mozambican authorities not to be landmine-affected. Of the 134 villages visited, 84 identified themselves as landmine-affected, reporting 166 Suspected Mined Areas (SMAs). Figure 1 provides an overview of the survey process: village selection; data collection; and data-entry into the Information Management System for Mine Action (IMSMA) database, out of which is generated the Mine Impact Score (Appendix I).

Expert Opinion Collection formed the basis for the selection of villages. Information from Official Interviews, from organizations active in the Province (HALO Trust, Handicap International), from the National Demining Institute (Diters Database) and from the personal knowledge of four of CIDC's senior personnel as a result of their involvement in the mine-action field in, among other parts of Mozambique, Cabo Delgado Province over the several immediately preceding years, were taken into account.

Village Survey Questionnaires were administered in every village found to be landmine-affected to a total of 948 Interviewees. The vast majority of Interviewees (84%) had occupations in agriculture, forestry and fishing. All age groups were well represented in each group interview, with on average one third of Interviewees aged from 15 to 29 years, one third aged from 30 to 44 years and the remaining one third being older than 44 years or of unknown age. Women participated in 39% of group interviews.

Provincial summary indicating number of CIDC village visits, population and reported Suspected Mined Areas and victims.

	Villages		Population	Mined Areas and Victims		
District	Affected Villages	Unaffected Villages	Affected Population	Number of SMAs	Victims in Last 2 Years	Total Victims
ANCUABE	9	4	22,163	16	7	15
BALAMA	3	2	6,382	4	1	1
CHIURE	10	6	20,971	23	3	8*
MACOMIA	4	4	4,433	5	0	1
MECUFI	1	1	4,006	2	0	0
MELUCO	5	4	5,427	10	0	19
MOCIMBOA DA PRAIA	5	1	5,094	11	0	1*
MONTEPUEZ	11	7	13,732	18	1	10
MUEDA	13	3	24,334	32	1	18
MUIDUMBE	7	0	26,109	16	0	17
NAMUNO	3	8	4,056	4	1	1
NANGADE	4	1	12,914	10	0	5*
PALMA	6	1	18120	10	0	3
PEMBA-METUGE	0	3	-	-	-	-
QUISSANGA	3	5	2825	5	0	3
Total	84	50	170,566	166	14	102

* Minimum value: certain communities could not report the precise number of victims

TABLE 1.

Table 1 summarises the principal findings for Cabo Delgado by District. A further breakdown by village in each District visited can be found at Appendix II. Suspected Mined Areas (SMAs) were reported in each District except for Pemba-Metuge, located on the coast surrounding the city of Pemba.

Landmine-affected villages were most numerous in the Districts of Mueda (13), Montepuez (11), Chiure (10) and Ancuabe (9), all of which had victims within the two-year period preceding the MLIS. Those four Districts account for 12 of the 14 recent victims reported in Cabo Delgado, seven of which were reported in Ancuabe District. The potentially affected population in these four Districts alone accounts for almost 50% of the total potentially affected population.

VICTIMS AND IMPACTS

VICTIMS

In total, 39 of 84 (46%) landmine-affected villages reported a minimum of 102 victims since the beginning of the Independence Struggle. Four villages could not specify the number of victims from the village, although three of those villages reported having had many victims. One village reported a total of 19 victims, accounting for almost 20% of the total victim tally for the Province.

Ten landmine-affected villages reported a minimum of 14 victims within the two years preceding the MLIS (one village did not know if there had been any recent victims). Four of those victims were killed and six injured, whereas information on the type of wound was not available for the remaining victims. Seven of the ten victims for whom data on gender were available were male. Farming and collecting food and water were reported as the most common activities at the time of the accident. The vast majority of recent victims were reported in the south-central region of Cabo Delgado (71% were reported in Chiure and Ancuabe Districts; see Table 1). Most of the recent victims in Cabo Delgado for whom data on age were available fell into the age group 15-29 years.

IMPACTS ON RESOURCES AND INFRASTRUCTURE

Figure 2 displays the number of villages in Cabo Delgado with blocked access to resources (water, cropland, pasture land and non-agricultural land) or infrastructure (blocked roads and other infrastructure points).

Blockage impacts on resources were reported as follows, in order of descending frequency: agricultural land (27%); water for drinking and other purposes (23%); and non-agricultural land (used for hunting, gathering fruit and medicinal plants, and collecting firewood and building materials; 20%).

Blockage to roads was reported by 13 of 84 villages (15%).

Seventeen villages (20%) reported seasonal variation in the severity of impacts: five reported greater severity during the dry season, four during the rainy season, three during the harvest period, three during the season when the soil is burned, one during summer, and one during the farming season. The majority of villages (64 of 84, or 76%) reported that there was no particular season during which landmines had a greater impact on their village.

Number of villages reporting blockage impacts by type.

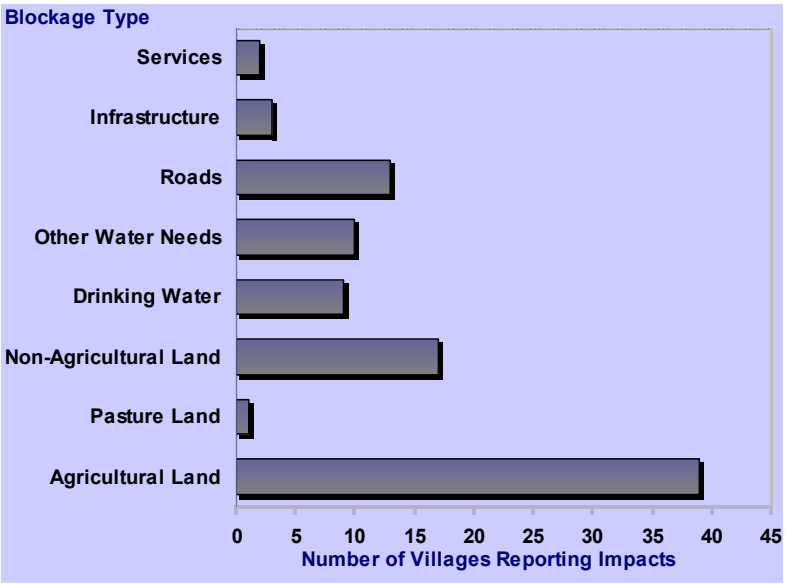

FIGURE 2.

For 39 of 84 (46%) villages, at least one-half of Interviewees reported that they worry a great deal about the presence of landmines, while for the remainder of villages (54%), the majority of Interviewees worry moderately or not at all. In total, 541 of 948 (57%) Interviewees reported that they worry about landmines in their village, with 452 (48%) who reported that they worry a great deal. Overall, 506 Interviewees (53%) reported that the presence of landmines changes their behaviour.

MINE IMPACT SCORE

The Mine Impact Score developed by the Survey Action Centre and the United Nations Mine Action Service distils a number of important variables (presence of landmines/UXO, blockage impacts and recent victims) into a single index that permits comparisons among villages. The weights used by the CIDC to generate the scores can be found at Appendix I.

Except in the improbable event that large numbers of recent victims (victims reported within two-year period preceding the MLIS) are widespread, the Mine Impact Score assigns a large number of villages to the low-impact category. The need has therefore been expressed in Mozambique for a tool that would assist in establishing priorities among those low-impact villages. Some alternative indices are discussed in the national report.

Figure 3 demonstrates that Ancuabe and Chiure Districts each have one highly impacted village (not shown for Chiure) and at least two moderately impacted villages. The aggregate population of the highly and moderately impacted villages in these two Districts totals over 5,000 and 13,500 persons respectively.

An apparent concentration of low-impact villages can be seen along the main transit routes in the northeastern Districts of Cabo Delgado (Palma, Nangade, Macomia, Muidumbe and Mocimboa da Praia).

Of the 84 landmine-affected villages, 27 (32%) identified the impacts as becoming more severe with time, while 13 (15%) reported the impacts as becoming less severe with time.

Map of Cabo Delgado Districts illustrating the distribution of group interviews and their Mine Impact Score.

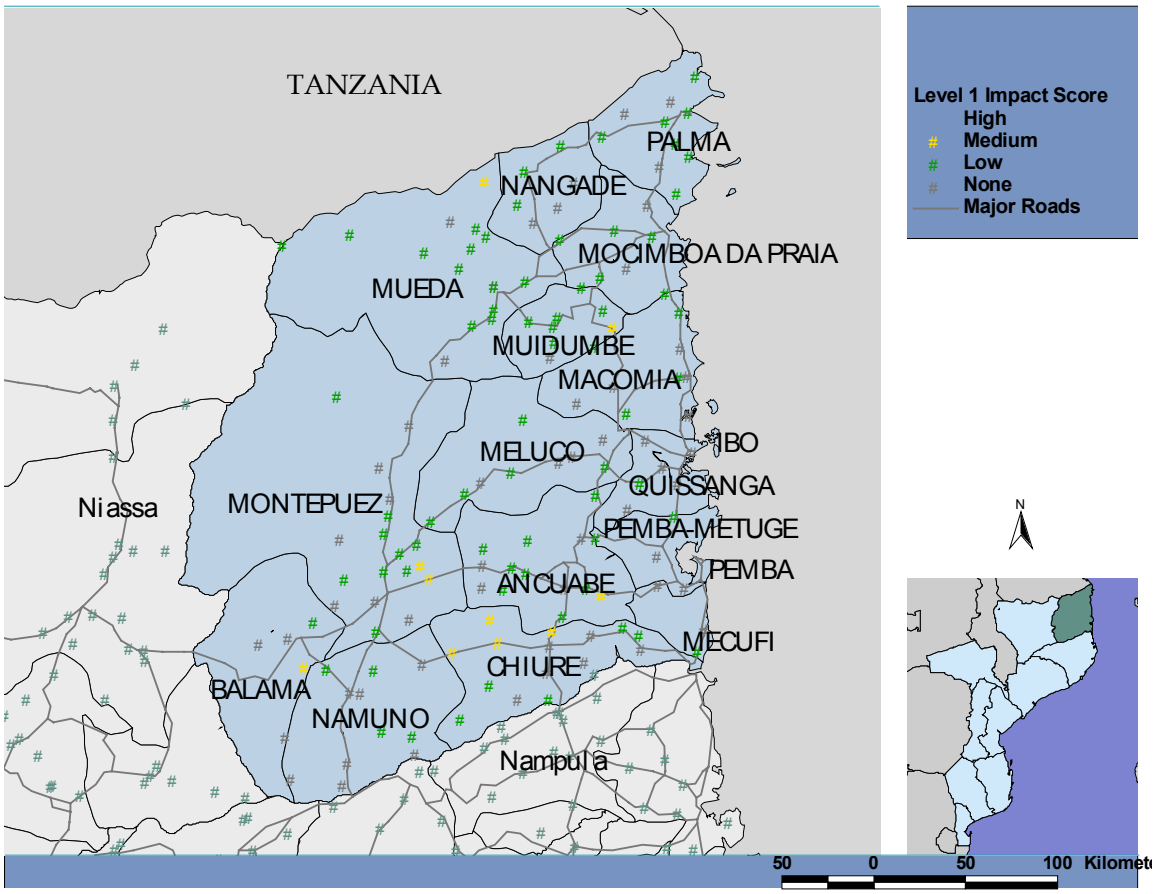

FIGURE 3.

MINE CONTAMINATION

DISTRIBUTION OF SUSPECTED MINED AREAS

Figure 4 illustrates that landmine contamination is generally concentrated in Mueda and Muidumbe Districts in the north and in parts of Chiure, Ancuabe and Montepuez Districts in the south. Contamination appears to be concentrated near major transport routes throughout the Province. Almost 25% of SMAs were reported to be within 1 km of a major road, and over 50% were reported to be within 4 km.

Map of Cabo Delgado Districts and administrative centres, illustrating the distribution of Suspected Mined Areas.

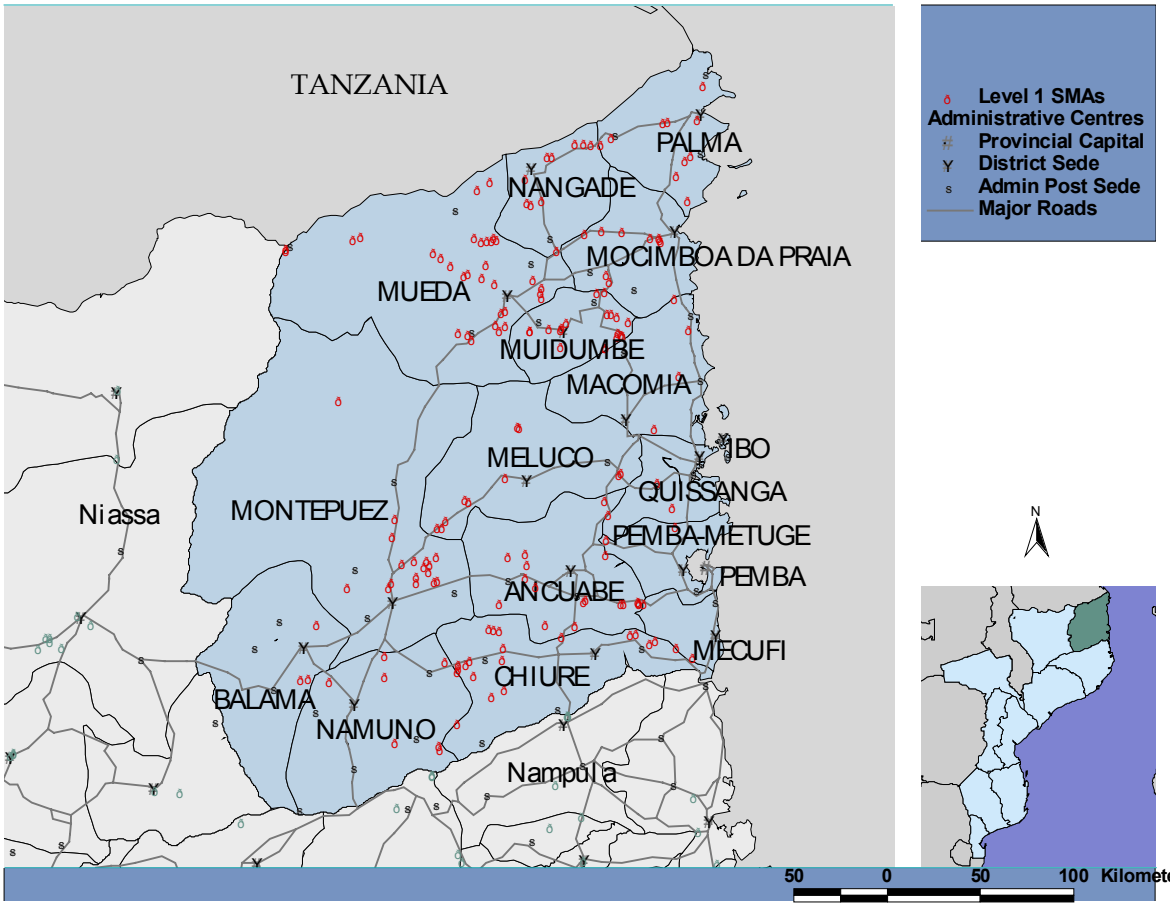

FIGURE 4.

Of the 84 landmine-affected villages reported in Cabo Delgado, 79% reported one or two SMAs. The remaining villages reported between three and five SMAs, with the notable exception of Matiquiti village in Chiure District, reporting a total of seven SMAs.

Information on the year in which landmines were first laid and the year in which they were last laid was reported for 59% and 50% of SMAs respectively. Landmines were first reportedly laid in 1964 and 1965, after which SMAs were reportedly created every year between 1968-1975 and 1984-1992. The majority of mine-laying took place in 1964 and in 1987, accounting for 16% and 14% of all SMAs respectively. The earliest year in

which landmines were last reportedly laid in individual SMAs was 1964. The temporal pattern thereafter is similar to that of first mine-laying.

TERRAIN AND TYPES OF ORDNANCE

SMAs were predominantly described as having a flat ground profile (71%). Mixed vegetation was reported as the most common vegetation cover, accounting for 44% of cases, followed by grasses, accounting for 39% of SMAs.

Most commonly, SMAs were classified as being proximate to trails and roads, accounting for 33%. Thirteen SMAs (8%) were classified as former military installations. Nine (5%) were reported to be adjacent to a well and seven (4%) adjacent to a bridge. Most SMAs (89 of 166, or 54%) were reported to have no marking (signs or fences) that would indicate the area to be landmine contaminated.

Of 84 landmine-affected villages, 9 (11%) reported harbouring unexploded ordnance (UXO), and an additional 15 (18%) reported harbouring both landmines and UXO. The remainder consisted solely of landmines.

SIZE AND DISTANCE OF SUSPECTED MINED AREAS

A vast range of SMA sizes was reported, from several reports of single UXOs to mined areas covering tens of square kilometers, the largest being the village of Olumbe in Palma District, reporting a mined area covering 68 km^2.

Frequency histogram of various Suspected Mined Area sizes

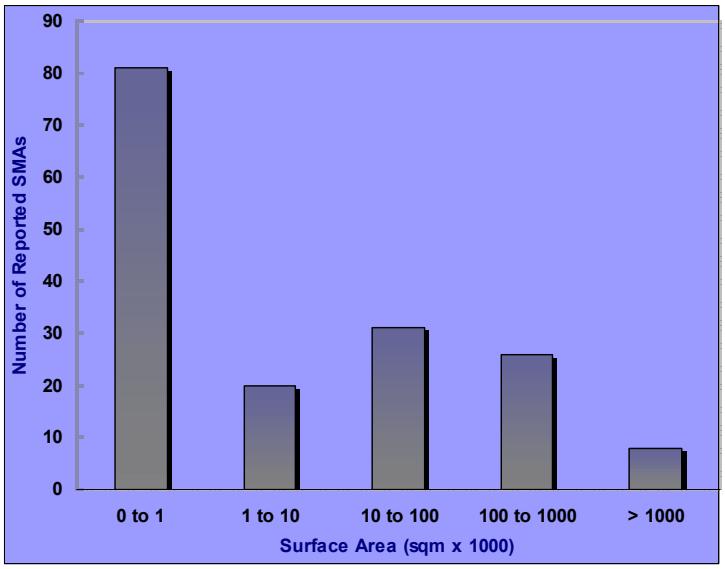

FIGURE 5.

Figure 5 shows the range of size estimates for the reported mined areas in Cabo Delgado. Forty-nine per cent of SMAs were reported to be less than or equal to 1000 m^2. Only eight SMAs, including those mentioned above, were reported to be larger than 1 km^2.

Fifty-two per cent of SMAs were reported to occur within 4 km of the affected village, and 91% were estimated to occur within 10 km. The most distant SMA was reported at a distance of 17.7 km from the affected village.

CONCLUSION

The principal findings of the MLIS in Cabo Delgado are as follows:

- The District of Mueda reported the most landmine-affected villages and SMAs, and ranked second in terms of victims, just after Meluco District. The Districts of Chiure, Ancuabe, Montepuez and Muidumbe also reported large numbers of landmine-affected villages, SMAs, and victims;
- A significant number of persons continue to fall victim to landmines (at least 14 within the two years preceding the MLIS) and over 170,000 persons, out of a total of 1,070,870, live in villages harbouring landmines;
- Blocked access to cropland is the most commonly reported impact of landmines on villages (23 of 84, or 27%);
- The distribution of affected villages and SMAs (Figures 2 and 3) is often clustered near transport routes. Taken with the relatively high number of villages (13) reporting blocked roads as impacting their community, and the frequent classification of SMAs as being in proximity to roads and trails (over 30%), landmines have severe implications for mobility in Cabo Delgado.

Appendix I – Mine Impact Score Weights

Variable	Weight
Types of Ordnance	
Landmines	2*
Unexploded Ordnance (UXO)	1*
Blockage Impacts	
Rainfed cropland	2
Irrigated cropland	0
Fixed Pasture	2
Migratory pasture	0
Non-agricultural land	1
Drinking Water	2
Other water uses	1
Housing area was blocked	0
Roads	1
Other infrastructure	1
Victims	
Victims within last 24 months	2*

Fixed Weights - value cannot be changed

FIXED WEIGHTS - VALUE CANNOT BE CHANGED

Weightings Assigned to Variables in Calculation of the Village Mine Impact Scores

Appendix II – Village Visits

LANDMINE-FREE VILLAGES:

District	Villages
ANCUABE	METORO
	MINHUENE
	NACOTA
	NGUEVE
BALAMA	IMPIRI
	NACACA
CHIURE	JURAVO
	MICOLENE
	MICOME
	MUGIPALA
	NASSIVANE
	SAMORA MACHEL
MACOMIA	COGOLO
	DUNHO
	MIPANDE
	NOVA VIDA

District	Villages
MECUFI	SASSALANE
MELUCO	IBA
	NAMITIL
	PITOLIA
	SITATE
MOCIMBOA DA PRAIA	QUELIMANE
MONTEPUEZ	BANDAR
	N1ROPA
	NACOLOLO 1A1
	NAMORO
	NANHUPO
	NATITE
	NQUEVENE
MUEDA	EDUARDO MONDLANE
	MUILO
	NGAPA SEDE

District	Villages
NAMUNO	COMUNE A E B
	MACHOCA
	MELOCO/HAPELA
	NAMACACA
	PEREQUE
	POIOMOLA
	PULUPO
	SEMENHA
NANGADE	NKONGA
PALMA	MPONDOMO
PEMBA-METUGE	MIEZE
	NACUTA
	NANCARAMO
QUISSANGA	CAGEMBE
	MUACO
	N1RAHA
	NAMANGE
	QUISANGA SEDE

LANDMINE-AFFECTED VILLAGES:

District	Admin Post	Village	Village Population	Number of SMAs	Total Victims	Recent Victims	Mine Impact Score
ANCUABE							
	ANCUABE						
		NANDULI	1690	2	0	0	Low
		MAHERA	2170	2	1	0	Low
		MIEGANE	626	1	0	0	Low
	METORO						
		SALAUE	1582	2	1	1	Medium
		NTUTUPUE	4857	1	1	1	Medium
		NIPATACO	1563	5	5	5	High
	MEZA						
		CAMPINE	1709	1	0	0	Low
		NANJUA	4702	1	2	0	Low
		MUAJA	3264	1	5	0	Low
BALAMA							
	BALAMA						
		MACO	1586	2	0	0	Medium
		NAIROBI	1544	1	1	1	Low
		NTETE	3252	1	0	0	Low
CHIURE							
	CHIURE-SEDE						
		MECARUMA	1316	1	0	0	Low
		TITIMAR	2853	2	4	0	Medium
	KATAPUA						
		MATIQUITI	3493	7	N/A	2	High
		MANIVICE	447	3	0	0	Medium
		MECULANE	3797	2	1	1	Medium
	MAZEZE						
		MUENTAGE 1A1	1083	2	0	0	Low
		RETENE	1637	2	0	0	Low
	NAMOGELIA						
		CHIUCO	2944	2	N/A	0	Low
		NAMUGELIA	1951	1	1	0	Low
	OCUA						
		N1MANGE	1450	1	0	0	Low
MACOMIA							
	CHAI						
		LITANDUACUA	1941	2	0	0	Low
	MACOMIA-SEDE						
		MACHOVA	1070	1	0	0	Low
	MUCOJO						
		PEDREIRA	176	1	0	0	Low
	QUITERAJO						
		MITACATA	1246	1	1	0	Low
MECUFI							
	MECUFI						
		NATUCO	4006	2	0	0	Low

CONTINUED ON NEXT PAGE

District	Admin Post	Village	Village Population	Number of SMAs	Total Victims	Recent Victims	Mine Impact Score
MELUCO							
	MELUCO						
		NAMAGICO	525	3	0	0	Medium
		RAVIA	1482	2	19	0	Low
		A. NAPIRE	451	1	0	0	Low
		MINHANHA	1169	2	0	0	Low
	MUAGUIDE						
		MITAMBO	1800	2	0	0	Low
MOCIMBOA DA PRAIA							
	DIACA						
		CHITOLO	1619	2	N/A	N/A	Low
	MBAU						
		CHINDA	Unknown	3	0	0	Low
		MARERE	754	1	0	0	Low
	MOCIMBOA DA PRAIA						
		BUJE	1067	4	0	0	Low
		CHUCULA	1654	1	1	0	Low
MONTEPUEZ							
	MAPUPULO						
		LINDE	1227	1	0	0	Low
	MIRATE						
		NICOCUE	905	1	3	0	Low
		TAVIRA	706	1	0	0	Low
		NACUCA	4952	1	0	0	Low
		UNIDADE	1587	2	0	0	Medium
		COCORO	249	2	0	0	Low
		MERENGE 1A1	166	1	0	0	Low
	NAIROTO						
		XIXANO	528	1	0	0	Low
	NAMANHUMBIR						
		NAPULA	1058	2	0	0	Low
		NAPACO	1159	4	2	1	Medium
		NSEMPIA	1195	2	5	1	Medium
MUEDA							
	CHAPA						
		CHAPA	1911	3	1	0	Low
	IMBUHO						
		NINGA/NANGAN	2399	2	4	0	Low
	MUEDA-SEDE						
		CHUNDI	1218	3	3	0	Low
		NANHALA	1590	2	1	0	Low
		IDOVO	1665	2	1	0	Low
		QUELIMANE	714	4	0	0	Low
		MPEME	7081	4	2	0	Low
	NEGOMANO						
		NEGOMANO	307	2	0	0	Low
	N-GAPA						
		CHIPINGO	616	1	0	0	Low
		NAMATIL	4120	2	3	1	Medium
		MACANGOLO	1089	2	0	0	Low
		MITAMA	796	4	0	0	Low
		MAGOGO	828	1	3	0	Low

CONTINUED ON NEXT PAGE