

Cost of PEC-Zonal Activities in Mozambique

Analysis of contract costs from 2008 up to 2011

Júlia Zita, Arjen Naafs (moz.washcost@gmail.com)

WASHCost

August, 2011 (Translated February 2012 from Portuguese)

A new approach on PEC (Community participation and education) management was introduced in 2008 using single contracts for one year for a whole district. This approach is known as PEC Zonal. The pioneering experience took place in 18 districts in the central region of the country, but in 2011, the government decided to expand the approach countrywide in understanding that it improves the sustainability of water supply services, sanitation and promotion of hygiene.

The current document has got two main objectives: first, to present and analyze the contract values of PEC Zonal (2008-2011), and second, to anticipate costs for 2012- 2016.

Main perceptions

From 94 contracts from 2008 up to 2011, the average cost of PEC zonal activities is about **3,025,000** meticals. The highest costs were encountered in the Province of Zambézia and the lowest in Sofala Province. In 2009 and 2010 the costs were lower.

No correlation was found between the cost and variables such as population, size, density and water coverage in a district. PEC Zonal is an example of direct costs (ExpDS). The average cost is 33 meticals (USD 1.1) per person a year.

Introduction

WASHCost main objective is to identify the costs in the water, sanitation and hygiene sector. It intends to determine all costs involved in the provision of sustainable services in the rural and peri-urban areas. One of the costs involved is the (promotion of) Participation and Education of the Community (PEC).

Before 2008, PEC activities were linked to interventions such as construction and rehabilitation of point water sources (boreholes and shallow wells). With PEC Zonal approach, introduced in 2008, a single (non-profit) organization or consultant is contracted to carry out all PEC activities in a district during the whole year. From 2011, the government has adopted this approach nationally and is implementing it in more districts through the PRONASAR common fund.

Methodology

WASHCost (www.washcost.info), in collaboration with SINAS (*National information system of water and sanitation*), collected information on the contracts signed by the Provincial and District governments. This document focuses on PEC Zonal activities. In total 94 contracts were collected (Table 1). In most cases, an organization is hired for two consecutive years. In this analysis, that is registered as two contracts in order to compare the development each year.

Table 1 Collected data from 2008 to 2011

Year	Nº contracts	Overall amount	Average
2008	18	52,384,377	2,910,243
2009	22	46,785,352	2,126,607
2010	19	40,822,732	2,148,565
2011	35	115,404,468	3,297,271
Total	94	255,396,929	

From Table 1 it is possible to calculate the average cost of each year (overall amount divided by the number of contracts), which is for example 3,297,271 for 2011. The information for the first years is mainly from the central region (table 2), where PEC Zonal started.

Table 2 Collected data 2008 to 2011 per Province

Year	2008	2009	2010	2011	Total
Sofala	7	7	7	7	28
Manica	6	6	6	6	24
Tete	5	6	6	6	23
Zambézia		2		5	7
Gaza		1		5	6
Maputo				5	5
Nampula				1	1
Total	18	22	19	35	94

Trends in costs

It is important to know the average costs in order to be able to understand variations. Table 1 presents the average cost per year and it seems to show a rising trend from 2008 up to 2011. However, for a proper comparison over time, there is need to adjust the costs for inflation.

To recalculate the past years, we need to multiply with the inflation correction factor of the table 3 to reach the current cost of 2011.

Table 3 Correction factor

Year	Inflation	Correction factor for 2011
2008	8.35%	1.29
2009	5.27%	1.19
2010	12.75%	1.13
2011	8.00%	1.00

For example, the cost of 2008 has to be multiplied by 1.29 to reach the corresponding cost in 2011. Table 4 shows this correction and indicates that the average cost is **3,024,828** meticals.

Table 4 Correction factor

Year	Cost without correction	Current cost	% in comparison to 2011
2008	2,910,243	3,742,840	114%
2009	2,126,607	2,524,160	77%
2010	2,148,565	2,422,458	73%
2011	3,297,271	3,297,271	100%
Average		3,024,828	

This table also shows that in 2008 the costs were higher than 2011. Both 2009 and 2010 had relatively low costs.

Costs per Province

Using the current cost (2011) it is possible to take contracts from all years into account and compare provinces (table 5). Zambézia has 20% cost above the average. The three Provinces with more experience with PEC Zonal do manage to have lower costs.

Table 5 Costs in each Province

Province	Current average cost (Mt)	%National average
Zambézia	3,635,347	120%
Nampula	3,599,998	119%
Gaza	3,466,125	115%
Maputo	3,397,583	112%
Tete	3,016,158	100%
Manica	2,906,545	96%
Sofala	2,799,036	93%
Average	3,024,828	100%

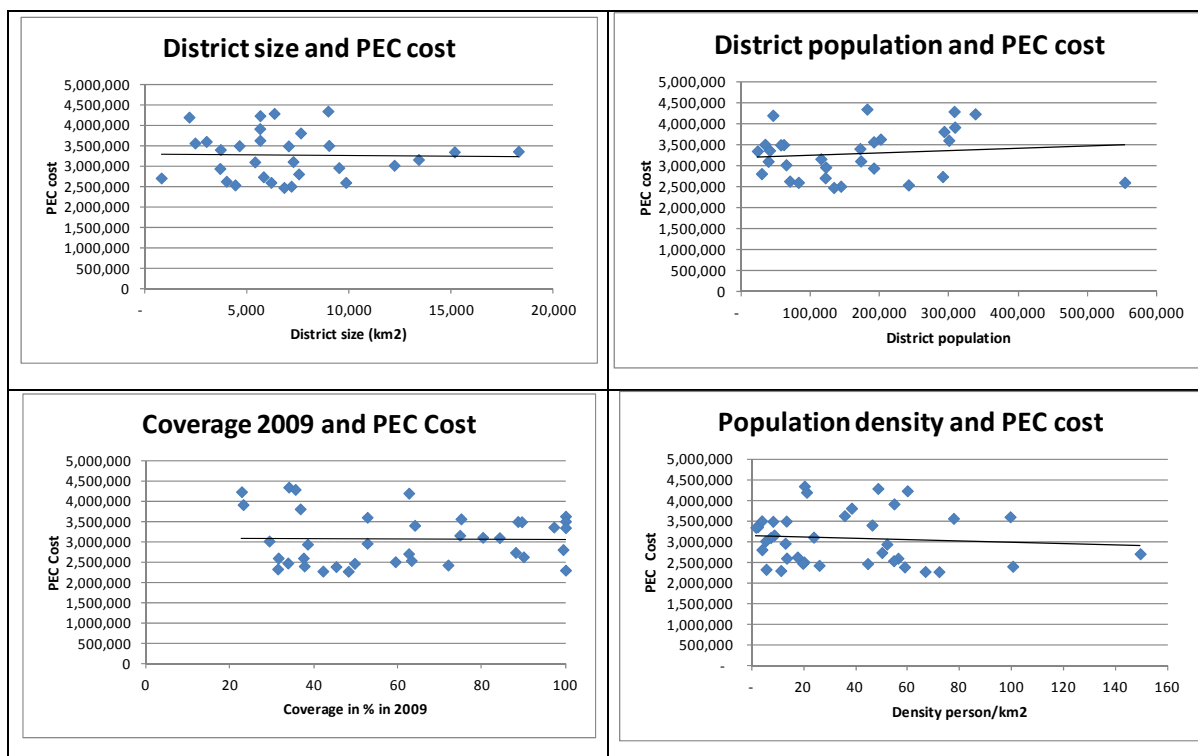
Costs drivers

PEC Zonal is a relatively new approach. It is not yet defined what are the main cost drivers are that may help in planning and budgeting. As a way to find out PEC Zonal cost drivers, analyses were carried out based on 4 variables (with current costs):

1. Size of the district (km²)
2. District population
3. Water coverage rate (2009)
4. Population density

As can be seen in Figure 1, none of these possible drivers have a correlation with PEC Zonal cost. In this sense, the main cost determinants may be related to completely different variables, as for example, the bill of quantity (with differences in demanded equipment) or differences in intervention for sanitation.

Figure 1: Different analyses of cost drivers versus PEC costs



Gilé district in Zambézia Province has the highest costs whereas Nicoadala district (also Zambézia Province) has the lowest cost. Zambézia Province has got 5 districts (Gilé, Alto Molócuè, Gurué, Ile e Maganja da Costa) with the high costs. Other high costs are within Nampula Province (Angoche district) and Gaza Province with the districts of Chókwè, Mabalane, Mandlakazi, Chicualacuala and Chigubo.

Figure 2 PEC-Zonal cost (current cost) per district

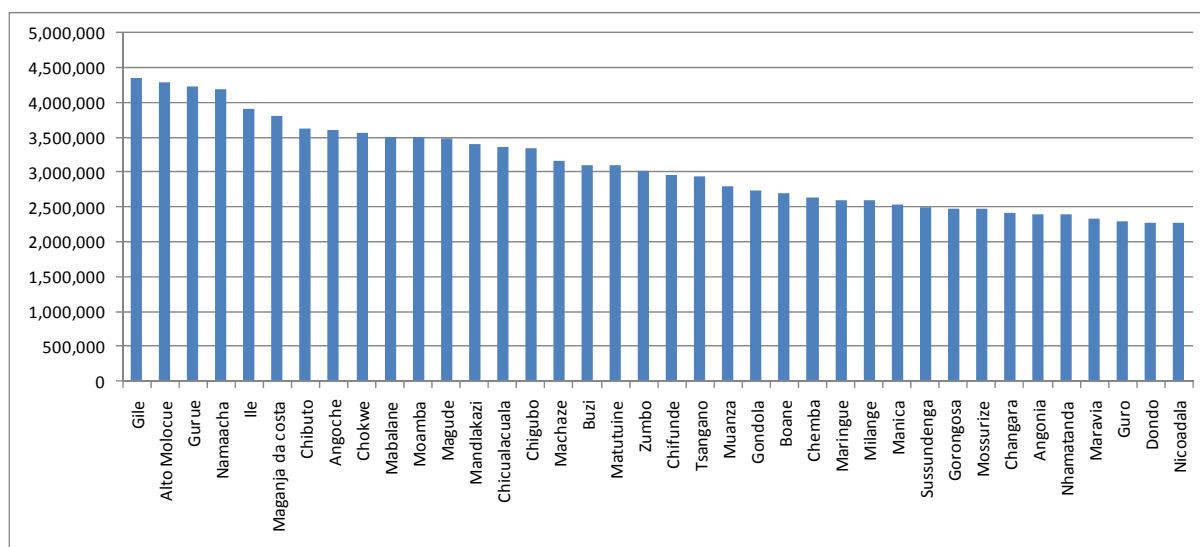


Table 6 Prevision of costs from 2012 to 2016 for PEC-Zonal activities, considering 2011 as base year

Year	2011	2012	2013	2014	2015
Index		1.08	1.1664	1.2597	1.3605
Average cost	3,024,828	3,266,814	3,528,159	3,810,376	4,115,278
Maximum	4,342,426	4,689,820	5,065,005	5,470,154	5,907,870
Minimum	2,271,367	2,453,077	2,649,323	2,861,241	3,090,195

Table 6 above indicates the inflation index projected for the next 5 years taking 2011 as base year and a yearly¹ average of 8%. The average PEC Zonal cost for the base year is 3.024,828 meticaís. Multiplying this by the annual index, gives the foreseen cost for the next 5 years. Over a 5 year period, the increase is about 36%, showing the importance of inflation in costs prevision.

Cost per person

In annex V the cost per person is presented, which is summarized in table 7. The highest amount (141 meticaís = USD 4.7) is in Chigubo district (Gaza Province), and the lowest amount is in Milange (5 meticaís = USD 0.2) (Zambézia Province). The average amount is 33 meticaís (USD 1.1).

Table 7 Costs per person

	Meticaís	Dollar (exchange rate 30Mt)
Average	33	\$ 1.1
Minimum	5	\$ 0.2
Maximum	141	\$ 4.7
Medium	19	\$ 0.6

Special case:

In 2010 four contracts were signed for Chibabava, Cheringoma, Machanga and Marromeu districts in Sofala Province, which had 1 million meticaís as limit. However, the approach and work is different and therefore those contracts have been excluded from the current analyses.

Discussion

The nature of PEC Zonal is to provide a long term service aimed at supporting the communities to improve their capacities to manage water supply and the hygiene and sanitation conditions. As such it can be considered as a good example direct support costs (ExpDS). In general, the amounts for each person do not seem to be high.

At the moment, there is not sufficient information to distinguish between support for water, support for hygiene or support for sanitation. A detailed analyses of the Bill of Quantity can reveal more.

The main cost drivers that were initially considered (size of the district, district population, coverage rate and population density) do not seem to have any influence on the cost. Therefore, other aspects such as contract specifications (type and quantity of desired equipment) can be a stronger cost driver. This should be the topic of further analysis.

The final observation is about the contracted entity. Up to June 2011, a total of 26 entities were contracted of which 50% are private companies, the others are NGO's. The 4 most contracted entities are all NGOs (Table 8).

Table 8 Organizations with most contracts

	Quantity
Aprodes	12
Oxfam	8
World Vision	8
Lutheran World Federation	8

¹ In Briefing note MozambiqueF01

WASHCost Mozambique has published the following documents (February 2012)

Publications in the **CapEx Cost** series (C):

- C01: Costs of point water sources – Unit cost analyses of contracts 2009 (*only Portuguese*)
- C02: Costs of point water sources – Unit cost analyses of contracts 2010 (*Portuguese & English*)
- C03A: Costs of point water sources – Unit cost analyses of contracts 2011A (January- June) (*Portuguese & English*)
- C03B: Costs of point water sources – Unit cost analyses of contracts 2011 (January- December) (*Portuguese & English in print February 2012*)

Publications in the **Direct cost** series (D):

- D01: WASHCost D01 costs PEC Zonal 2008-2011 ExpDS (*Portuguese & English*)

Publications in the **Economic** series (E):

- E01: Inflation in the last 10 years (*only Portuguese*)
- E02: Exchange rate in the last 10 years (*only Portuguese*)
- E03: PPP, definitions and implications (*only Portuguese*)

Publications in the **Finance** series (F):

- F01: Cost of capital-revealing a hidden cost (*Portuguese & English*)

Publications in the **Methodology** series (M):

- M01: Sector Assessment WASHCost Mozambique Final report (*English only*)
- M02: WASHCost Mozambique Sampling methodology (*Portuguese & English*)

Publications in the **Sanitation** series (S):

- S01: Costs of sanitation facilities in Mozambique (*in print February 2012*) (*only Portuguese*)
- S02: Sanitation service levels in Mozambique (*Portuguese & English*)

Publications in the **International Paper** series (I):

- I01: Planning and Budgeting Mechanisms and Tools in the Mozambique Water Sector (*Portuguese & English*)
- I02: Collecting WASH services cost data: Experiences from Mozambique (*English only*)

More information and download of all documents can be found on: www.washcost.info

Annexes

Annex I

Unit cost contracts PEC-Zonal 2008

Province	Objective - District	Valor do Contrato	Quantity	Unit cost
Tete	PEC Zonal in Tsangano	4,077,767	1	4,077,767
Tete	PEC Zonal in Chifunde	4,007,278	1	4,007,278
Tete	PEC Zonal in Marávia	3,728,865	1	3,728,865
Manica	PEC Zonal in Machaze	3,568,520	1	3,568,520
Manica	PEC Zonal in Mossorize	3,405,996	1	3,405,996
Sofala	PEC Zonal in Maringue	3,111,164	1	3,111,164
Sofala	PEC Zonal in Buzi	3,008,575	1	3,008,575
Sofala	PEC Zonal in Chemba	2,996,487	1	2,996,487
Manica	PEC Zonal in Manica	2,875,709	1	2,875,709
Manica	PEC Zonal in Gondola	2,692,536	1	2,692,536
Manica	PEC Zonal in Guro	2,664,277	1	2,664,277
Sofala	PEC Zonal in Gorongosa	2,593,984	1	2,593,984
Manica	PEC Zonal in Sussundenga	2,406,568	1	2,406,568
Tete	PEC Zonal in Angónia	2,340,001	1	2,340,001
Tete	PEC Zonal in Changara	2,304,001	1	2,304,001
Sofala	PEC Zonal in Nhamatanda	2,281,892	1	2,281,892
Sofala	PEC Zonal in Dondo	2,203,450	1	2,203,450
Sofala	PEC Zonal in Muanza	2,117,308	1	2,117,308
Total:18		52,384,377	18	52,384,377

Annex II

Unit cost Contracts PEC-Zonal 2009

Province	Objective	Contract value	Quantity	Unit cost
Manica	PEC Zonal in Machaze	3,060,444	1	3,060,444
Gaza	PEC Zonal in Chibuto	3,056,160	1	3,056,160
Tete	PEC Zonal in Zumbo	2,814,525	1	2,814,525
Tete	PEC Zonal in Chifunde	2,464,292	1	2,464,292
Tete	PEC Zonal in Tsangano	2,450,319	1	2,450,319
Sofala	PEC Zonal in Muanza	2,401,960	1	2,401,960
Zambézia	PEC Zonal in Milange	2,188,057	1	2,188,057
Tete	PEC Zonal in Angonia	2,175,448	1	2,175,448
Tete	PEC Zonal in Changara	2,147,728	1	2,147,728
Sofala	PEC Zonal in Buzi	2,044,449	1	2,044,449
Manica	PEC Zonal in Mossurize	2,040,250	1	2,040,250
Sofala	PEC Zonal in Chemba	2,027,575	1	2,027,575
Sofala	PEC Zonal in Maringue	1,985,127	1	1,985,127
Manica	PEC Zonal in Gondola	1,918,000	1	1,918,000
Manica	PEC Zonal in Manica	1,918,000	1	1,918,000
Zambézia	PEC Zonal in Nicoadala	1,913,629	1	1,913,629
Sofala	PEC Zonal in Gorongosa	1,826,869	1	1,826,869
Tete	PEC Zonal in Maravia	1,786,050	1	1,786,050
Sofala	PEC Zonal in Nhamatanda	1,719,872	1	1,719,872
Manica	PEC Zonal in Sussundenga	1,697,500	1	1,697,500
Sofala	PEC Zonal in Dondo	1,622,293	1	1,622,293
Manica	PEC Zonal in Guro	1,526,805	1	1,526,805
Total: 22		46,785,352	22	46,785,352

Annex III

Unit cost contracts PEC-Zonal 2010

Province	Objective	Contract value	Quantity	Unit cost
Sofala	PEC Zonal in Buzi	3,239,675	1	3,239,675
Manica	PEC Zonal in Machaze	3,060,444	1	3,060,444
Tete	PEC Zonal in Zumbo	2,814,525	1	2,814,525
Tete	PEC Zonal in Chifunde	2,464,292	1	2,464,292
Tete	PEC Zonal in Tsangano	2,450,319	1	2,450,319
Sofala	PEC Zonal in Muanza	2,401,960	1	2,401,960
Tete	PEC Zonal in Angonia	2,175,448	1	2,175,448
Tete	PEC Zonal in Changara	2,147,728	1	2,147,728
Manica	PEC Zonal in Mossurize	2,040,250	1	2,040,250
Sofala	PEC Zonal in Chemba	2,027,575	1	2,027,575
Sofala	PEC Zonal in Maringue	1,985,127	1	1,985,127
Manica	PEC Zonal in Manica	1,918,000	1	1,918,000
Manica	PEC Zonal in Gondola	1,918,000	1	1,918,000
Sofala	PEC Zonal in Gorongosa	1,826,869	1	1,826,869
Tete	PEC Zonal in Maravia	1,786,050	1	1,786,050
Sofala	PEC Zonal in Nhamatanda	1,719,872	1	1,719,872
Manica	PEC Zonal in Sussundenga	1,697,500	1	1,697,500
Sofala	PEC Zonal in Dondo	1,622,293	1	1,622,293
Manica	PEC Zonal in Guro.	1,526,805	1	1,526,805
Total: 19		40,822,732	19	40,822,732

Annex IV

Unit cost dos Contractos PEC-Zonal 2011

Provincia	Objective	Valor_contracto	Quantity	Unit cost
Zambézia	PEC Zonal in Gile	4,342,426	1	4,342,426
Zambézia	PEC Zonal in Alto Molócuè	4,286,268	1	4,286,268
Zambézia	PEC Zonal in Gurué	4,230,106	1	4,230,106
Maputo	PEC Zonal in Namaacha	4,194,780	1	4,194,780
Zambézia	PEC Zonal in Ile	3,912,814	1	3,912,814
Zambézia	PEC Zonal in Maganja da costa	3,807,348	1	3,807,348
Manica	PEC Zonal in Gondola	3,767,362	1	3,767,362
Nampula	PEC Zonal in Angoche	3,599,998	1	3,599,998
Manica	PEC Zonal in Sussundenga	3,588,279	1	3,588,279
Gaza	PEC Zonal in Chòkwé	3,562,186	1	3,562,186
Gaza	PEC Zonal in Mabalane	3,501,134	1	3,501,134
Maputo	PEC Zonal in Moamba	3,496,000	1	3,496,000
Maputo	PEC Zonal in Magude	3,491,335	1	3,491,335
Gaza	PEC Zonal in Mandlakazi	3,401,775	1	3,401,775
Manica	PEC Zonal in Guro	3,364,006	1	3,364,006
Gaza	PEC zonal in Chicualacuala	3,358,953	1	3,358,953
Gaza	PEC zonal in Chibugo	3,345,216	1	3,345,216
Sofala	PEC Zonal in Buzi	3,239,675	1	3,239,675
Sofala	PEC Zonal in Maringue	3,199,521	1	3,199,521
Sofala	PEC Zonal in Gorongosa	3,195,924	1	3,195,924
Sofala	PEC Zonal in Chemba	3,188,025	1	3,188,025
Sofala	PEC Zonal in Nhamatanda	3,180,725	1	3,180,725
Tete	PEC Zonal in Chifunde	3,176,198	1	3,176,198
Manica	PEC Zonal in Manica	3,172,250	1	3,172,250
Tete	PEC Zonal in Tsangano	3,142,315	1	3,142,315
Maputo	PEC Zonal in Matutuine	3,099,800	1	3,099,800
Sofala	PEC Zonal in Dondo	3,071,541	1	3,071,541
Sofala	PEC Zonal in Muanza	2,856,735	1	2,856,735
Tete	PEC Zonal in Marávia	2,852,567	1	2,852,567
Maputo	PEC Zonal in Boane	2,706,000	1	2,706,000
Manica	PEC Zonal in Mossorize	2,677,883	1	2,677,883
Tete	PEC Zonal in Zumbo	2,534,070	1	2,534,070
Manica	PEC Zonal in Machaze	2,388,936	1	2,388,936
Tete	PEC Zonal in Changara	2,304,665	1	2,304,665
Tete	PEC Zonal in Angónia	2,167,655	1	2,167,655
Total: 35		115,404,468	35	115,404,468

Annex V

Average cost per person PEC-Zonal 2008 to 2011 per district and density

District	Average	Population 2010	Geographical size	Density	Coverage 2009	Cost/person
Gile	4,342,426	181,733	8,971.6	20.3	34.1	23.9
Alto Molocue	4,286,268	307,690	6,338.5	48.5	35.6	13.9
Gurue	4,230,106	337,917	5,645.9	59.9	22.8	12.5
Namaacha	4,194,780	45,875	2,175.0	21.1	62.7	91.4
Ile	3,912,814	308,455	5,634.0	54.7	23.2	12.7
Maganja da costa	3,807,348	293,015	7,632.0	38.4	36.8	13.0
Chibuto	3,627,487	201,300	5,642.7	35.7	100.0	18.0
Angoche	3,599,998	299,962	3,016.8	99.4	52.8	12.0
Chokwe	3,562,186	191,408	2,465.3	77.6	75.1	18.6
Mabalane	3,501,134	34,497	9,012.7	3.8	100.0	101.5
Moamba	3,496,000	61,480	4,628.9	13.3	88.6	56.9
Magude	3,491,335	57,211	7,036.6	8.1	89.5	61.0
Mandlakazi	3,401,775	171,567	3,706.9	46.3	64.1	19.8
Chicalacuala	3,358,953	41,113	18,290.9	2.2	97.2	81.7
Chigubo	3,345,216	23,662	15,158.5	1.6	100.0	141.4
Machaze	3,157,362	115,290	13,403.0	8.6	74.8	27.4
Buzi	3,106,326	172,709	7,263.1	23.8	80.3	18.0
Matutuine	3,099,800	39,139	5,392.3	7.3	84.2	79.2
Zumbo	3,016,021	64,868	12,211.9	5.3	29.4	46.5
Chifunde	2,959,868	122,199	9,501.2	12.9	52.7	24.2
Tsangano	2,937,794	191,430	3,682.1	52.0	38.5	15.3
Muanza	2,805,293	29,550	7,535.9	3.9	99.4	94.9
Gondola	2,735,473	290,954	5,810.7	50.1	88.1	9.4
Boane	2,706,000	121,538	813.1	149.5	62.6	22.3
Chemba	2,626,895	70,168	3,995.9	17.6	90.0	37.4
Maringue	2,597,980	82,749	6,180.1	13.4	37.6	31.4
Milange	2,597,098	553,879	9,841.9	56.3	31.6	4.7
Manica	2,537,102	241,644	4,425.0	54.6	63.3	10.5
Sussundenga	2,505,669	143,961	7,171.2	20.1	59.4	17.4
Gorongosa	2,474,688	133,717	6,815.7	19.6	33.9	18.5
Mossurize	2,466,626	226,057	5,068.8	44.6	49.7	10.9
Changara	2,425,136	173,153	6,675.9	25.9	72.0	14.0
Angonia	2,400,851	329,401	3,279.9	100.4	37.8	7.3
Nhamatanda	2,387,077	237,370	4,037.6	58.8	45.3	10.1
Maravia	2,328,745	93,219	16,924.0	5.5	31.4	25.0
Guro	2,299,225	78,021	6,982.6	11.2	100.0	29.5
Dondo	2,275,403	154,653	2,317.3	66.7	42.2	14.7
Nicoadala	2,271,367	243,750	3,383.1	72.0	48.2	9.3