

Sampling methodology Mozambique

Using the MICS¹ as base for WASHCost

WASHCost team

March 2010
Version 1.3

¹ Multiple Cluster Indicator Survey

Table of Contents

1	Background	4
2	Rational for selecting state or country	5
2.1	Criteria for selection of Mozambique.....	5
2.2	Demography – or statistical universe.....	5
3	Rationale for selecting Regions/ Provinces	8
3.1	Rationale for national approach	8
3.2	Criteria for selecting Pilot Provinces	9
3.3	Selecting from National census surveys	9
3.4	The Statistical Universe for Service levels.....	10
3.5	Advantages of sampling strategy based on MICS	11
3.6	Possible disadvantages of this approach.....	11
3.7	Sampling at Provincial level	12
3.8	Methods at Provincial level	13
4	Rationale for selecting Districts	14
4.1	Cluster selection.....	14
4.2	Sampling at District level.....	14
4.3	Methods at District level	15
5	Rationale for selecting villages/communities	16
5.1	Selection of communities	16
5.2	Methods at Community level.....	16
6	Rationale for selecting households	17
7	Overall considerations	18

List of Figures

Figure 1:	Recommended water source options (DNA, 2006)	4
Figure 2:	Population figures per province	6
Figure 3:	Histogram of district population.....	6
Figure 4:	Division between Urban and Rural	7
Figure 5:	Initial pilot areas	9

List of Tables

Table 1:	Population of Mozambique per Province	6
Table 2:	Critical questions in Census 2007.....	10
Table 3:	Predominant Technology types per Province (sorted per bh quantity) – RWSS 2005.....	12
Table 4:	Currently ongoing large rural water and sanitation projects per Province.....	13
Table 5:	Selected provinces.....	13
Table 6:	Clusters per Province.....	14
Table 7:	Clusters per Province.....	14
Table 8:	Total number of WASHCost districts	15

List of Annexes

Acronym	Meaning
Annex I	Urban areas as defined by INE
Annex II	Codification suggested for WASHCost

List of Acronyms

Acronym	Meaning
CAP	<i>Census Agro Pecuaria</i> – Agriculture and livestock census
DAR	<i>Departamento de água Rural</i> – Rural Water Department
DNA	<i>Direcção Nacional das águas</i> – National Directorate of Water
GPC	<i>Gabinete de Planificação e Controlo</i> – Department of planning and Control
IDS	<i>Inquérito Demográfico e de Saúde</i> – Health and Demography Survey
INE	<i>Instituto Nacional de Estatística</i> – National Institute of Statistics
IOF	<i>Inquerito de Orçamento Familiar</i> – Survey on Family Budgeting
IRC	International Center for Water and Sanitation
LA	Learning Alliance
MICS	Multiple Indicator Cluster Survey
NWP	National Water Policy
WSP	Water and Sanitation Program of the World Bank

Summary Table

	Total data universe	WASHCost sample	Explanation/ criteria for selection
First level Provinces	11 provinces in Mozambique	6 provinces, 5 rural and small towns and one with peri-urban settlements (Maputo) Secondary data will be collected from all provinces	2 were original pilot provinces selected by LA because of advanced decentralisation, nice spread of hydrogeology and one taken as representative of the north (Nampula) and of the south (Inhambane) Plus 1 for peri urban (Maputo). Criteria for the other 3 were: Spread of technologies Better project information Provinces where information generated can best be used (capacity) (See 3.7 of strategy)
Second level Clusters (correspond to communities) and small towns	715 clusters/ communities of ~150 households each 438 'served' clusters 148 districts	40 rural clusters 21 small town/ peri urban 7 control Total = 67 (2 per district, 4 rural and 2 peri urban/ small town per province)	Rural criteria: Clusters served with improved water supply Spread of technologies/ diversity of infrastructure Expected variance Sample of 9 per Province, clustered in 4 districts (for logistical reasons) Districts chosen on (perceived) hydrogeological differences within province. Peri urban criteria: From all urban areas (includes small towns) are chosen: Lowest quintile With improved water supply Small town criteria: See peri-urban criteria In addition, 20% of sample in rural areas expected to have small systems. (See section 4 of the sampling strategy)
Third level (HH)	Estimated 20.000.000 people, average HH size is 5: 4 million HH	20 HH detailed per community/cluster. 67 Clusters in total: 1340 HH. Also Rapid assesment done in about 40 HH per community: depends on HH size and service area	Criteria for detailed hh surveys: Random starting from main water point Every second hh in rural and every third in peri urban and small towns 20 HH per community/ cluster

1 Background

The sampling strategy is a short document team that describes the justification for the choices made concerning sampling. This strategy enables the teams to get approval from their “LA” members and compare across the project.

The structure of report follows the administrative structure from national down to household level. At each level, the following will be discussed:

- Criteria (what is the motive/method of choosing specific areas)
- Numbers against total universe of sample
- Representativeness of what (strengths)
- Weakness (what is left out)

The Mozambican sampling method was discussed during a dedicated meeting on December the 7th, 2009, with representatives of WSP and DNA.

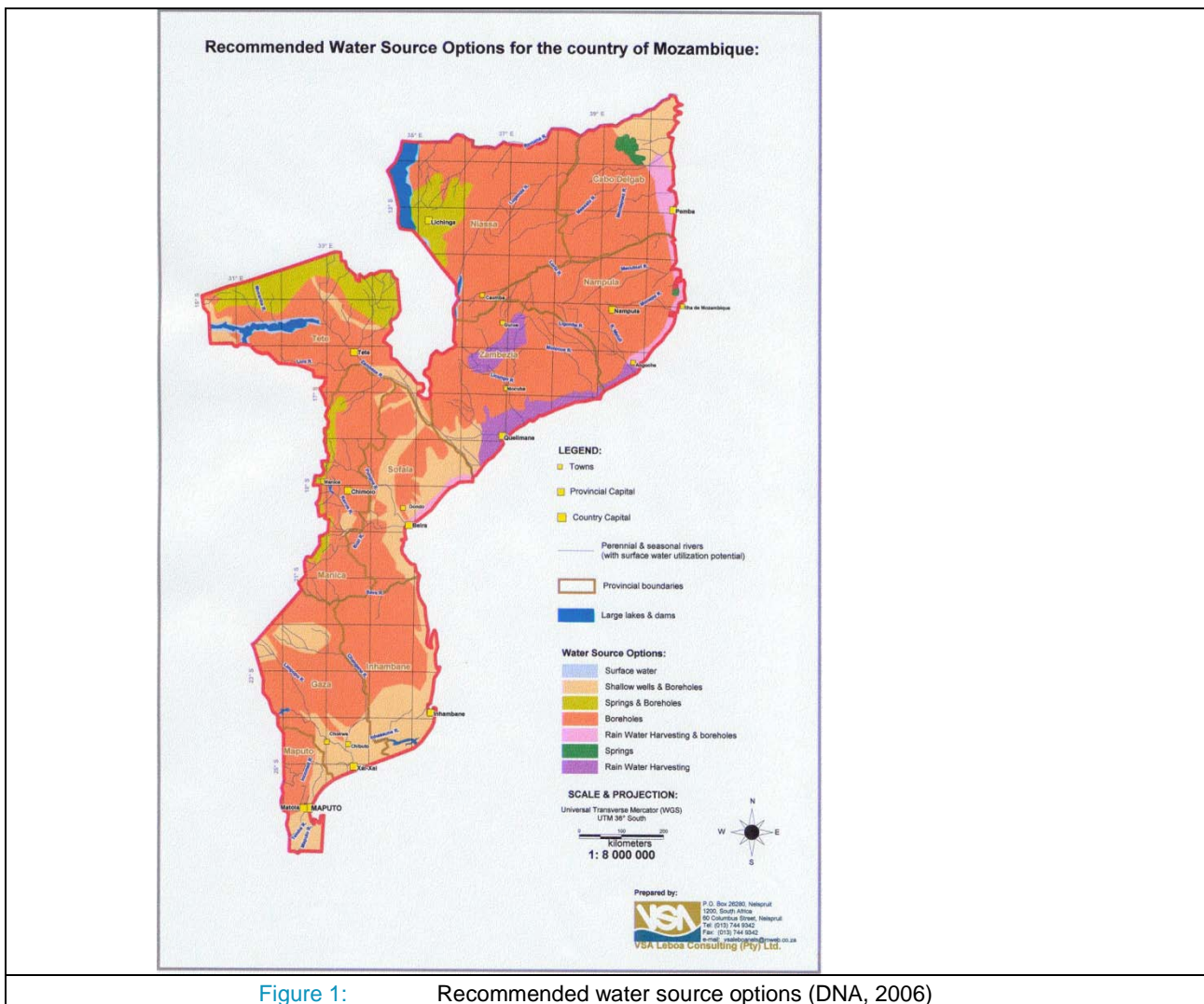
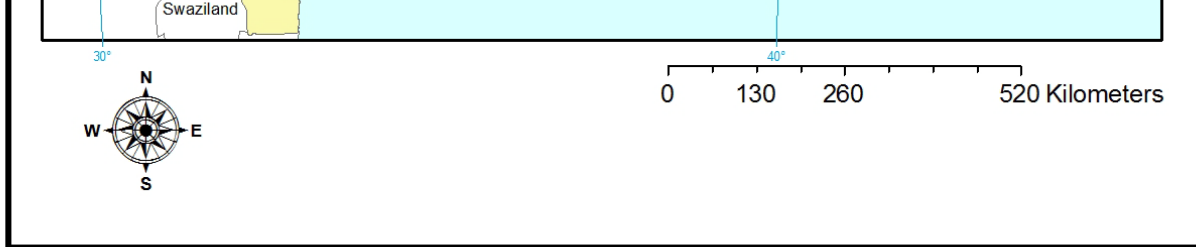


Figure 1: Recommended water source options (DNA, 2006)



2 Rational for selecting state or country

2.1 Criteria for selection of Mozambique

The first selection was made during the inception phase of the project (2008). Scoping visits were made to various countries. Eventually, Mozambique was chosen based on a number of criteria:

- Governmental support

The policy environment in Mozambique is conducive to implementing an impact-oriented project like WASHCost. Key actors in the sector (DNA, the National Water Department, UNICEF, Regulator's Office, Netherlands' Embassy) confirm that there is a strong need for improved cost information, both in general to improve budgeting for capital investments, but also in particular because the country is on the brink of a huge decentralization effort that will include decentralizing budgets towards the districts and provinces. There is also a clear commitment to community management, sector co-ordination and collaboration, Sector Wide Approaches, joint sector reviews, and to improved accountability and transparency.

- Water sector developments

One of the most significant developments in the water sector of Mozambique during the last decades was the development of the National Water Policy (NWP) by the Government of Mozambique (GoM) in 1995, which signalled a radical change in both the provision and management of water supplies and also in how the country's water resources are managed. After decades of top-down planning in both the provision and management of water supplies, the NWP called for the decentralization of water service provision, a greater role for the private sector especially in urban water supply management, and the adoption of the demand responsive approach in the rural water sub-sector.

- The organisations involved

While there is research capacity, it is scattered across a range of agencies and organisations. It will take strong co-ordination and oversight to engage and manage a research team. It appears to be possible to create an embedded project setup in Direcção Nacional de Águas (DNA) that will be able to deliver the expected project outputs. The lead partner for WASHCost in Mozambique is therefore DNA while the project is hosted by CoWater Consultores Lda.

The institutional partnership with DNA is reflected in the Co-operative Agreement between DNA and IRC, signed at the project launch in November 2008, and the appointment of a focal point officer from the Rural Water Department (DAR) as part of the Core Country Team.

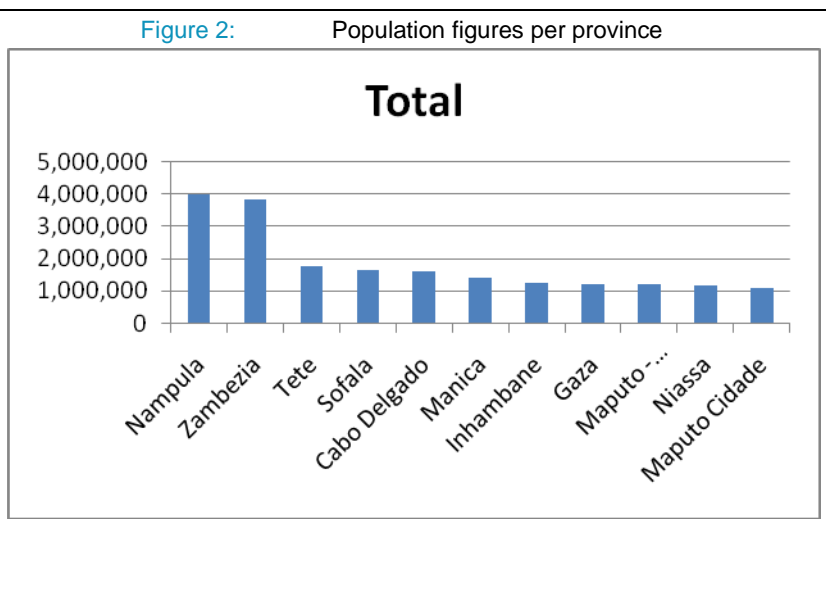
2.2 Demography – or statistical universe

In order to understand how representative WASHCost sampling will be, it is useful to first describe the total “universe” of Mozambique. As WASHCost is targeting households, the sampling universe is, de facto, the total population of Mozambique.

Table 1 shows the population to be 20,226,296 as determined during the last census in 2007. The country is divided in 11 Provinces, each of which has on average around 1.800.000 people. Two provinces, Nampula and Zambézia account for more than a third of the population (38.7%).

Table 1: Population of Mozambique per Province

Province	Population
Nampula	3,985,285
Zambezia	3,848,274
Tete	1,783,967
Sofala	1,642,636
Cabo Delgado	1,605,649
Manica	1,412,029
Inhambane	1,252,479
Maputo - Provincia	1,226,272
Gaza	1,205,553
Niassa	1,169,837
Maputo Cidade	1,094,315
Grand Total	20,226,296



The provinces themselves are subdivided into districts, with on average about 13 districts per Province. In total there are 148 districts, with an average population size of 138.000 people. There are considerable differences for districts in size (5,000 people for the new district 7 in Maputo town to over 675.000 for Matola Town in Maputo Province see [Figure 3](#)).

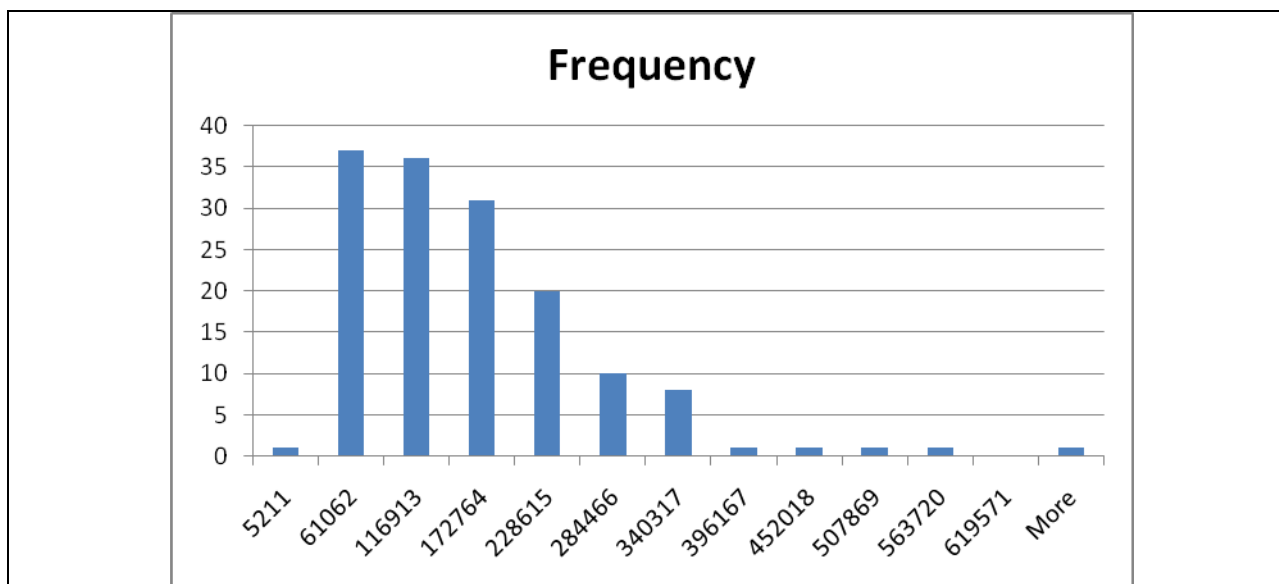
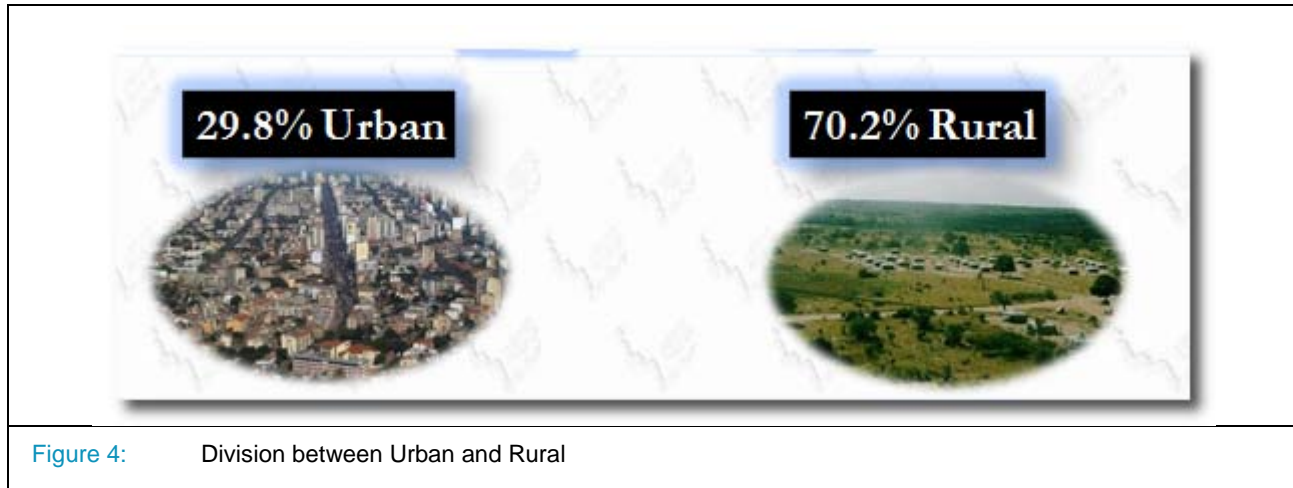


Figure 3: Histogram of district population

INE (National bureau of Statistics) has classified the country in urban and rural areas, though mainly based on administrative position (e.g. Provincial capital) than on demographic aspects. Thus there are some urban areas with some rural characteristics and some of the small to medium towns that are actually part of the rural area.



INE has classified 23 towns in Mozambique. Furthermore, 68 municipalities and district capitals are regarded as urban. In total 29.8% (Figure 4) of the population is living in these 91 urban areas. The full list can be found in annex I.

3 Rationale for selecting Regions/ Provinces

3.1 Rationale for national approach

Mozambique is divided in 11 Provinces (considered to be equivalent to “regions” of other African WASHCost countries). The initial principle of WASHCost Mozambique is to provide information that is relevant and statistically viable at National and Provincial (= Regional) levels. This principle is based on a number of realities and a few assumptions:

- Our main partners, DAR and GPC work at national and provincial level
- Capacity at district level is not yet considered sufficient to have district fully engaged in data collection and verification during a large scale research project
- The project gains considerably more leverage by working nationwide than by working in a limited number of districts
- It is argued that nationwide coverage enables better representativeness of the various hydrogeological zones of the country.

Though it will be demonstrated in 3.7 that it is not viable to sample always in all provinces, the focus of WASHCost Mozambique remains national and will be able to collect information from any level (the used codification allows for this)..

As the primary ground level datacollection this involves large scale and intensive data collection, certain provinces were prioritised for piloting (see 3.2). Based on these results, the primary provinces were selected for the full scale data collection.

3.2 Criteria for selecting Pilot Provinces

The first pilot areas for sampling were defined early in the project (November 2008):

- Nampula Province: hard rock area, normal borehole depths, presence of shallow wells. Administrative furthest decentralised. Taken as representative for Northern Mozambique.
- Inhambane Province: Sedimentary area, deep boreholes (>50 m), salinity problems. Historically many interventions and good community mobilisation. Taken as representative for Southern Mozambique.
- Maputo City: main area for peri-urban situation.

In each of the Provinces, one district was chosen early 2009 for the first testing (see Figure 5). The 2010 survey are scheduled to initiate in these provinces, and will most likely revisit the initial pilot districts.

3.3 Selecting from National census surveys

After discussion with the various stakeholders, it was felt that INE is the best institution to assist in nationwide surveys. INE has done / is doing representative nationwide data collection exercises, each of which could provide important secondary information:

- I. National Census **2007**: all households were visited during the dry season. The census is repeated every 10 years.
- II. MICS (*Multiple Indicator Cluster Survey*) **2008** >14.000 Households, dry season, Multiple Cluster Survey: Conducted in 2008, concentrating on reproductive health, nutrition and water and sanitation.
- III. IOF (*Inquerito sobre Orcamento Familiar*): **2009**, >20.000 households, throughout the year. Main objective was family budgeting.
- IV. CAP (*Census Agro-Pecuario*): Agriculture and livestock **2009-2010**: survey concerning food security
- V. IDS: (*Inquérito Demográfico e de Saúde*): **2010**: > 20.000 households, Main objective is demography and a health survey

The data from both the Census and MICS are (partially) available since November 2009. After discussions with staff from INE it was decided to take the MICS as base for WASHCost sampling for the following reasons:

- The clustering approach of the MICS reduces sampling size
- The MICS has the most recent data available on Provincial access to water and sanitation
- The MICS has collected a considerable amount of data of interest to WASHCost service levels, for example Distance to water source and perceived water quality.

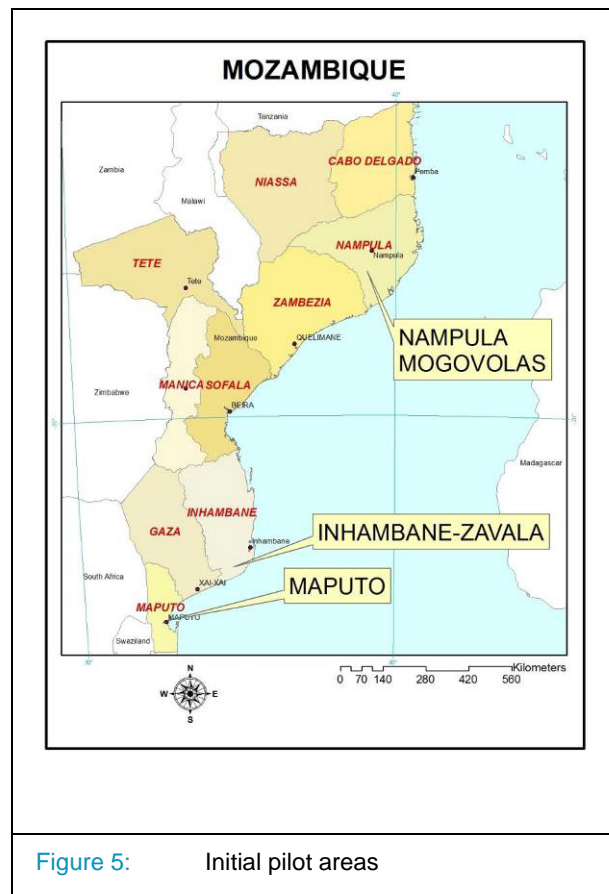


Figure 5: Initial pilot areas

One of the strongest arguments to follow the INE sampling framework is that the WASHCost results can later be linked and correlated with other censuses. This enhances the future use of WASHCost data.

INE works with enumeration areas or clusters. Households are clustered into enumeration areas of up to 150 households. Rural communities are typically just one cluster, but larger communities (more than 700 people) are subdivided into two or more clusters. For analyses purposes, these enumeration areas are considered more or less homogeneous. The MICS sampling methodology selected 715 clusters in order to ensure that the sample is representative at national, provincial and urban/rural levels.

3.4 The Statistical Universe for Service levels

The census looked at two main components that are important for service level. These questions concerned the source of drinking water and the use of latrines/toilets.

Table 2: Critical questions in Census 2007

A. Where do you normally get your drinking water?		B: What type of latrine do you use?	
1. Tap connection within the house	2.0%	1. System linked to septic tank	3.1%
2. Yard connection	8.2%	2. Slab latrine	6.4%
3. Public tapstand	10.4%	3. Improved traditional latrine	5.7%
4. Borehole / protected shallow well	14.1%	4. Traditional latrine	30.7%
5. Traditional well	46.8%	5. No latrine	53.5%
6. River or lake	17.1%	6. Unknown	0.6%
7. Rain water	0.6%		
8. Springs	0.1%		
9. Others	0.7%		

Drinking Water Sources

Source	Percentage
Traditional well	46.8%
Borehole / protected shallow well	14.1%
River or lake	17.1%
Public tapstand	10.4%
Yard connection	8.2%
Tap connection within the house	2.0%
Rain water	0.6%
Springs	0.1%
Others	0.7%

Latrine Types

Latrine Type	Percentage
No latrine	53.5%
Traditional latrine	30.7%
Slab latrine	6.4%
Improved traditional latrine	5.7%
System linked to septic tank	3.1%
Unknown	0.6%

The discussion on service levels is ongoing (see WASHCost International Working paper N° 2), but in general service levels for water mean that some form of improved water supply³ is present. When analysing the data of [Table 2](#) in more detail, it becomes apparent that only 34.7% (urban 69.0% and rural only 21.1%) of the population use some form of water services (option 1,2, 3 or 4 of [Table 2](#)).

³ In Mozambique, only improved water sources are considered for coverage calculations. Improved water sources are piped systems, boreholes and shallow wells with handpumps, protected springs and rain water harvesting.

Concerning latrines, only option 1, 2 and 3 of Table 2) are regarded as 'served' in Mozambique, representing only 15.2% of the population (41.0% urban and 5.0% rural).

Considering the low service levels present, WASHCost Mozambique needs to concentrate (and select) those areas that already have some form of service level, for any meaningful data collection on existing costs.

3.5 Advantages of sampling strategy based on MICS

The Mozambican WASHCost sampling method uses the MICS' sampling framework. This is based on the following guiding principles:

1. WASHCost is going back to the same areas where the MICS data was collected in 2008. This will enable full use of existing data.
2. The sampling concentrates on those areas that were reported to have some form of water service during the MICS 2008 survey.
3. MICS provides a workable definition of peri-urban and a method to select from these areas in a statistical sound way.

Using access to sanitation services as sampling criteria was not found viable, due to the low coverage in rural areas.

One of the benefits of going back to the exact same areas is that this approach enables WASHCost to triangulate findings with existing socio economic data (even providing with option of analysing change over time).

3.6 Possible disadvantages of this approach

Using the MICS has a couple of set-backs, most notably the following:

- A. Only sampling of areas with access to improved water sources, excludes looking at possible costs related to areas with only traditional sources.
- B. The status of the water source in 2007 and 2010 can be completely different. It could well be that water sources have broken down. Water sources that were (temporarily) not working during the 2008 MICS survey will not be sampled.
- C. An enumeration cluster or area that received their first water point since 2008 is in theory not included in the sampling.
- D. The enumeration areas do not always coincide with administrative areas. This causes a possible conflict in data collection from e.g. bairro or community level.

All of these set-backs (except the last – which will be discussed in 5.1) can be overcome by including a sample of clusters that were not covered by water services in 2008. There is however one last constraint to the method:

- E. Depending on INE data and methodology assumes that INE information is
 - On time
 - Fully public

- Understandable to all

This last constraint is mainly overcome by working closely with specific individuals. It is however not always possible to reproduce this type of sampling strategy in other countries.

3.7 Sampling at Provincial level

During the first design phase of the sampling strategy, it was foreseen to work in all Provinces. However, after a critical assessment of the available resources, it was necessary to do field based/ primary data collection in half of the Provinces (5 out of 10 rural provinces and the (only) one urban province).

WASHCost will work with all Provinces, however primary data collection at district level will only take place in half of the Provinces due to resource constraints.

The selection of the first of these provinces has already been discussed in see 3.2. Therefore, Nampula, Inhambane and Maputo City will be included in the primary data collection.

For the remaining two provinces, the following criteria are suggested:

1. System technology (linked with Hydrogeological zones)
2. Linking in with existing projects for better information
3. Where can the information generated best be used (capacity)

The first criterion, system technology, is analysed in Table 3, which shows that Cabo Delgado is the Province with the most shallow wells. Zambézia is the only Province with relevant numbers of springs, though even there it is only marginal.

Table 3: Predominant Technology types per Province (sorted per bh quantity) – RWSS 2005

Province	Bhs	Wells	Springs
Sofala	77%	23%	0%
Maputo	73%	27%	0%
Manica	73%	27%	0%
Inhambane	68%	32%	0%
Tete	67%	32%	0%
Nampula	60%	40%	0%
Gaza	58%	41%	0%
Zambézia	56%	38%	6%
Niassa	46%	54%	0%
Cabo Delgado	45%	55%	0%
Average	62%	37%	1%

The second criterion of existing projects is analysed in Table 4. It shows that three Provinces (Niassa, Maputo, Gaza) currently are not benefiting from a program. From a perspective of data collection and embedding, these three are less advantageous to work in. It needs to be noted that the large scale project of PRONASR still has not defined in which area they will be focused.


Table 4: Currently ongoing large rural water and sanitation projects per Province

Province	Area	Projects
Cabo Delgado	North	HAUPA, PROGOAS, Aga Khan
Nampula	North	MCC, HAUPA, India gov. project
Niassa	North	None
Zambézia	North	UNICEF Schools, India gov. project
Manica	Center	One million initiative
Sofala	Center	One million initiative
Tete	Center	One million initiative
Gaza	South	None
Inhambane	South	PDARI-2
Maputo	South	None
Maputo Cidade	South	WSUP, Wateraid

Based on these criteria, the following Provinces are proposed:

Table 5: Selected provinces

Province	Main consideration
Cabo Delgado	North, Shallow wells, HAUPA, Aga Khan projects
Nampula	North, Initial pilot area, ASNANI, MCC projects
Manica	Center, Inland, one million initiative
Tete	Center, Inland, one million initiative
Inhambane	South, Initial pilot area, deep boreholes, PDARI projects
Maputo Cidade	South, Initial pilot area, peri-urban aspects, Link with Wateraid and WSUP



This necessary reduction of number of Provinces implies that the sampling is no longer representative at national level. However, concerning the main criteria of hydrogeological/technology option it is arguable that the provinces that are omitted are similar to those selected:

3.8 Methods at Provincial level

As has been discussed in 3.1, the WASHCost project orientates, wherever viable to be national representative. Therefore, primary data collection will be done from all the Provincial Water Offices (DPOPH) in each province and all possible secondary information collected (in particular contract data). All Provinces therefore will be visited.

In principle at provincial level, the main data collection tool will be interviews with key stakeholders. The main outcomes should be:

- Indications of support costs
- Detailed records of contracts during last number of years

The developed questionnaire for Provincial level, concentrates on checking that all necessary documentation is obtained. It is focussed on administration, but could, to a lesser extent, be used for NGO's.

4 Rationale for selecting Districts

4.1 Cluster selection

The MICS selection strategy does not target certain districts, but selected directly at a lower level, at cluster level. The sampling universe of the MICS, is first reduced by applying the criteria of the selected Provinces and next by selecting only a limited number of clusters per province. This is shown in Table 6.

Table 6: Clusters per Province

Province	Rural	Urban	Total
MICS National	304	407	715
MICS Selected Provinces	227	168	395
WASHCost Selection within Selected provinces	45	22	67

Following this selection procedure, as well as the selected provinces (see 3.7), Table 7 has been constructed. Per Province at least 12 clusters will be sampled.

Table 7: Clusters per Province

Province	WASHCost clusters			MICS Clusters	
	Rural	peri-urban	Control	Rural	Urban
Cabo Delgado	8	3	1	45	15
Nampula	8	3	1	56	24
Tete	8	3	1	48	12
Manica	8	3	1	39	21
Inhambane	8	3	1	39	21
Maputo Cidade	0	6	1	0	75
Moçambique	40	21	7	227	168

4.2 Sampling at District level

The sampling is for 40 (rural) + 21 (peri-urban) + 6 (control) = 67 clusters. In a "worst case scenario", each cluster falls into a separate district. This would lead to sampling one cluster in 67 different districts which is not possibly logistically with available resources. However, it is suggested to group districts and sample two clusters per district. This would mean working in 4 rural districts and one peri-urban district per each of the provinces (Table 8).

This selection of these four target districts per Province are based on the following criteria:

- Spread of expected technologies (thus hydrogeology)
- Sufficiently strong district administration (expected to have some data)
- At least 2 “eligible” MICS clusters.

This selection of districts was done together with staff from all the DPOPH of the country.

It needs to be noted that the travel between districts is the main logistical burden and any reduction in the number of districts will relieve the logistical resource requirements.

Table 8: Total number of WASHCost districts

Province	Rural Districts	Peri-urban	Total
Cabo Delgado	4	1	5
Nampula	4	1	5
Tete	4	1	5
Manica	4	1	5
Inhambane	4	1	5
Maputo Cidade	0	3	3
Moçambique	20	8	28

4.3 Methods at District level

The main research tool at district level is key stakeholder interviews. The main outcomes will be:

- Indications of support costs
- Detailed records of contracts during last number of years
- Understanding of use of existing unit cost values

Further presentation of tools and methodology is in the research protocol.

5 Rationale for selecting villages/communities

5.1 Selection of communities

One of the main constraints of the current methodology is arguably that the clusters are units defined by INE, and not by administrative units. In other words, the boundaries of the clusters are only known to INE and not known on the ground. This constraint has been overcome by deciding to work in the entire community in which the selected cluster falls. In practice, this will mean that each cluster actually represents a community. Therefore, population and user data will thus be collected of the whole community and *not only* of the cluster.

Simplified, WASHCost uses the MICS methodology to decide in which community to work

This has as potential disadvantage that the results of the MICS of the cluster do not necessarily correlate with the results that WASHCost collects of the whole community. This needs to be kept in mind once comparing the two data sets.

Though the MICS cluster is sometimes only part of the community, it is expected to represent socio-economically (in particular in rural areas) the whole community.

A specific issue is when the cluster is part of a much larger town, such as can be the case in peri-urban areas and district capitals. In this case, the methodology will be to concentrate the household data collection and population data collection in the *bairro* in which the cluster falls. However, the system serving the cluster might extend to a larger area. In that case, the whole cost of the system will be taken into account.

5.2 Methods at Community level

At community level, the following tools will be used:

- Community questionnaire
- Water point questionnaire
- Rapid assessment of Households

These tools and methods are described in more detail in the research protocol.

6 Rationale for selecting households

The selection of the households will be based on the following criteria:

- Starting at the main part of the water system (handpump, public tapstand)
- Use “spin the bottle” to identify a starting location
- Start with a randomly selected household number between one and five from the waterpoint
- After that use every n^{th} . Household (every second hh for dispersed rural and every third hh for peri-urban). A total of 10 households in each direction will be sampled, making the whole HH sample for a community 20.
- Turn right at first junction, left at next, right at following etc. (this is the “snake” method that INE uses during any of their sampling exercises).

The strength of this method is that sampling will start with the households near the waterpoint and therefore most certainly within the service area. One of the weaknesses is that distances may become extremely far.

7 Overall considerations

- The sampling method was tested in December 2009 and analysed in January and February 2010. It showed that it was well possible and viable to:
 - Locate the exact locations of the MICS 2008
 - Using the MICS enumeration area to identify a community
 - Obtain information from various type of technologies (the two visited areas had 4 different technologies)
- The method has been adapted to a phased version, where sampling is done per province. This would be able to make it more suitable for budgeting and possible extension to the other provinces.

The single biggest threat to this sampling methodology is the lack of data in the field. It is questionable if it makes sense to sample households around a water source where no financial history is known.

Annex I – Urban areas as defined by INE

Nº	Codigo Provincia	Codigo Distrito	Codigo PA	Codigo Localidade	Nome
VILAS URBANOS					
1.	01	06	01	01	VILA DE MANDIMBA
2.	01	10	01	01	VILA DE INSACA
3.	01	16	01	01	VILA DE UNANGO
4.	02	04	01	01	VILA DE CHIURE
5.	02	05	01	01	VILA DE IBO
6.	02	06	01	01	VILA DE MACOMIA
7.	03	03	01	01	VILA DE NAMAPA
8.	03	06	01	01	VILA DE MALEMA
9.	03	06	03	01	VILA DE MUTUALI
10.	03	07	01	01	VILA DE MECONTA
11.	03	07	03	01	VILA DE NAMIALO
12.	03	11	01	01	VILA DE NAMETIL
13.	03	12	01	01	VILA SEDE DE MOMA
14.	03	14	01	01	VILA DE MOSSURIL
15.	03	16	01	01	VILA DE MURRUPULA
16.	03	18	01	01	VILA DE NACALA-VELHA
17.	03	21	03	01	VILA DE IAPALA
18.	04	03	01	01	VILA DE CHINDE
19.	04	03	02	01	VILA DE LUABO
20.	04	09	01	01	VILA-SEDE DE MAGANJA (BALA)
21.	04	13	01	01	VILA DE MORRUMBALA
22.	04	14	01	01	VILA DE NAMACURRA
23.	04	17	01	01	VILA DE PEBANE
24.	05	03	01	01	VILA DE SONGO
25.	05	11	01	01	VILA DE NHAMAYABUE
26.	06	07	02	01	VILA DE MACHIPANDA
27.	06	07	03	01	VILA DE MESSICA
28.	07	02	01	01	VILA DE BUZI
29.	07	03	01	01	VILA DE CAIA
30.	07	05	01	01	VILA DE INHAMINGA
31.	07	13	01	01	VILA DE NHAMATANDA
32.	08	03	01	01	VILA DE NOVA MAMBONE
33.	08	04	01	01	VILA-SEDE DE HOMOINE
34.	08	05	01	01	VILA DE INHARRIME - SEDE
35.	08	06	01	01	VILA DE INHASSORO
36.	08	11	01	01	VILA DE MORRUMBENE
37.	08	14	01	01	VILA DE QUISSICO
38.	09	02	05	01	VILA DA PRAIA DE BILENE
39.	09	04	01	01	VILA EDUARDO MONDLANE
40.	09	06	04	01	VILA DE XILEMBENE
41.	09	07	01	01	VILA DE CANIÇADO
42.	10	02	01	01	VILA DE BOANE
43.	10	03	01	01	VILA DE MAGUDE
44.	10	04	05	01	VILA DE XINAVANE
45.	10	05	01	01	VILA DE MARRACUENE
46.	10	06	01	01	VILA DE BELA VISTA
47.	10	07	01	01	VILA DE MOAMBA
48.	10	07	03	01	VILA DE RESSANO GARCIA
VILAS MUNICIPIOS					
49.	01	03	01	01	MUNICIPIO DE METANGULA
50.	01	07	01	01	MUNICIPIO DE MARRUPA
51.	02	09	01	01	MUNICIPIO DE MOCIMBOA DA PRAIA
52.	02	11	01	01	MUNICIPIO DE MUEDA
53.	03	13	01	01	MUNICIPIO DE MONAPO
54.	03	21	01	01	MUNICIPIO DE RIBAUE

Nº	Codigo Provincia	Codigo Distrito	Codigo PA	Codigo Localidade	Nome
55.	04	02	01	01	MUNICIPIO DE ALTO MOLOCUE
56.	04	10	01	01	MUNICIPIO DE MILANGE
57.	05	02	01	01	MUNICIPIO DE ULONGOE
58.	05	10	01	01	MUNICIPIO DE MOATIZE
59.	06	02	01	01	MUNICIPIO DE CANTADICA
60.	06	03	01	01	MUNICIPIO DE GONDOLA
61.	07	08	01	01	MUNICIPIO DE GORONGOSA
62.	07	11	01	01	MUNICIPIO DE MARROMEU
63.	08	09	01	01	MUNICIPIO DE MASSINGA
64.	08	13	01	01	MUNICIPIO DE VILANKULOS
65.	09	02	01	01	MUNICIPIO DE BILENE-MACIA
66.	09	09	01	01	MUNICIPIO DE MANDLACAZE
67.	10	04	01	01	MUNICIPIO DE MANHIÇA
68.	10	08	01	01	MUNICIPIO DE NAMAACHA
CIDADES					
69.	01	01			CIDADE DE LICHINGA
70.	01	02	01		CIDADE DE CUAMBA
71.	02	01			PEMBA CIDADE
72.	02	10	01		MONTEPUEZ CIDADE
73.	03	01			CIDADE DE NAMPULA
74.	03	02	01		CIDADE ANGOCHE
75.	03	04	01		ILHA DE MOCAMBIQUE (CIDADE)
76.	03	17			NACALA-PORTO
77.	04	01			CIDADE DE QUELIMANE
78.	04	05	01		GURUE (CIDADE)
79.	04	11	01		CIDADE DE MOCUBA
80.	05	01			CIDADE DE TETE
81.	06	01			CHIMOIO CIDADE
82.	06	07	01		MANICA - SEDE
83.	07	01			BEIRA CIDADE
84.	07	07	01		DONDO
85.	08	01			INHAMBANE (CIDADE)
86.	08	10			MAXIXE (CIDADE)
87.	09	01			CIDADE DE XAI-XAI
88.	09	03	01		CIDADE DE CHIBUTO
89.	09	06	01		CIDADE CHOKWE
90.	10	01			MATOLA CIDADE
91.	11				CIDADE DE MAPUTO

Annex II - Codification to be used

In principle, the codification will follow the INE codes for administrative levels.

For Community:

Prov		District		Posto Admin		Localidade		Community		
01-11		01-08		01-04		01-05		001-715 (MICS codes)		

For House holds, two digits are added (01-20) the following is added:

Prov		District		Posto Admin		Localidade		Community		HH

For Systems two digits: F_ (F1-F9):

										F	
Prov		District		Posto Admin		Localidade		Community		System	

The strength of the above approach is the possibility of linking Systems, via community code with HH data. In addition, it is easy to aggregate data for district level with coding:

Prov		District	

And to Provincial level:

Prov	

Considerations still to be addressed:

- Should the systems also indicate what it is? Proposed: PSAA for systems and Furo and poco to be added to code?
- Should the community code include U for (peri-urban) and R for rural?

Possible problems:

- In the rare case that there is a system that serves two communities, the numbering can be discussed.
- Localidade is often not known
- How to code the communities / systems etc, that are collected as additional data (e.g. WSUP information?), or a nearby system (that is not on the MICS list).