

# *Water & Sanitation Facts*



## **Sanitation & Water for All**

Changing patterns of main source of drinking water & type of toilet used

# Manager's Statement

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I would like to thank the New Zealand Statistics Bureau for the commitment in capacity development for statisticians in the Pacific region. Statistical analysis and research is an area that Statistics Offices around the region especially in small island developing states lack. For this training to upskill statisticians in the field of research is a great achievement for National Statistics Offices.

Melanie has shown great commitment in completing her assigned project. She is trying her best to manage her normal duties and the project given the deadlines she has. Her research will help the Policy and Planning division of the Ministry of Health in evaluating the Health Policies in relation to water and sanitation.

We confirm that all analysis in this project is that of Melanie's and we wish her all the best in this project!

Tenk yu tumas



**Calo Andy KAP**

# Acknowledgements

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This report is part of Unit Standard 25440 which is a statistical research project in a public sector context. The data being used in this report is mainly from the Population and Housing Census 2009, the 2016 Post PAM Mini Census report.

Special Thanks to the Statistics New Zealand team especially the hard working lecturers that were responsible for each unit it was indeed a great opportunity learning from you guys and thanking you for your tremendous effort and time you put into this course. You have shared with us your knowledge and skills and we were very fortunate and would like to acknowledge all of you for this great support.

Also thanking the Vanuatu National Statistics office whom by seeing the importance of this course and gave us the opportunity to take part in this training course. We are very fortunate to be part of this important training course because from here we can then build on and apply what we have learnt to improve our work in the area of official statistics.

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# Acronyms

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WaSH                      Water and Sanitation for Health

VIP                        Ventilated Improved Pit Latrine

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# 1. Introduction

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## Background

This topic is important because it can monitor how many people in Vanuatu have access to proper safe drinking water and also clean/ hygienic toilets. For people to stay healthy and also to have a healthy country these two indicators are very important to measure and monitor the progress of the health status in Vanuatu.

Water has been high on the agenda at the international sustainability forums for over a decade. During the World Summit on Sustainable Development in 2002 the international community re-confirmed support for the United Nations Millennium Development Goals by 2015.

- To halve the number of people without access to basic sanitation
- To halve the proportion of people without sustainable access to safe drinking water

These goals are a big challenge to small Pacific Island Countries with their small land masses, remote locations and small but rapidly growing populations. Obstacles include limited resources and also because the islands are scattered, some islands are mountainous and there is a rugged environment in some places around the each islands. The population of Vanuatu is growing at 2.3% per year, water resources are declining and in many places contaminated, and household water supplies are inadequate or absent (Vanuatu hardship and poverty report, 2012)

I will be using data from the 2009 and 2016 Censuses in order to see whether there has been an improvement between those years. The data used is only from private households for both years 2009 and 2016. From the total private households for both years I will then find out how much percentage out of the total households have access to improved and unimproved drinking water sources and also how many households have access to a safe/clean toilet compared with households that do not have access to safe/clean toilets in Vanuatu. I will look at these changes for Urban/ Rural areas and also by Provinces.

## Summary: Household type in Vanuatu

Household type	VANUATU	
Year	2009	2016
Total of Private Households	<b>47,373</b>	<b>55,285</b>

Source: Census main report 2009 & 2016

## LITERATURE REVIEW

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Universal access to safe drinking water, sanitation and adequate hygiene (Sanitation, Drinking –Water and Health in Pacific Island Countries 2015 Update and Future Outlook)

(WaSH) a service is essential to population’s health, welfare and development. In 2012, in the Pacific Region, 94,000 deaths were attributed to diarrheal infections from the use of unsafe water, poor sanitation and lack of hygiene. Another 14,000 deaths from malnutrition were traced back to a lack of access to adequate WaSH services. WaSH services need to be taken into account during disaster prevention and preparedness activities to avert adverse secondary health consequences in disaster stricken areas ((Sanitation, Drinking –Water and Health in Pacific Island Countries 2015 Update and Future Outlook)

This Sanitation, Drinking- Water and Health in the Pacific Islands Countries 2015 Update and Future Outlook (2015) shows the important key facts that **550** million people in the Western Pacific Region still do not have access to improved sanitation.

In the Vanuatu Hardship & Poverty Report ( 2012 pg 15 & 16), the researchers show that access to improved water and sanitation systems depend more on the geographic location, and less on vulnerability status, of households with poorer access in rural areas. At the national level, the average proportion of all households with access to piped water (private and shared) is 35% compared to an average of 39% for households below the basic needs poverty level. Meanwhile, on average, 21% of all households rely on wells, springs, rivers and other sources for drinking water compared to a slightly higher average of 24% of all households below the below the basic needs poverty level. The proportions of households below the basic needs poverty level with access to piped water (private and shared) are 76%, 55% and 21% compared to 85%, 78% and 21% of non-poor households in Port Vila, Luganville and rural areas, respectively. Very few households in rural areas have access to private, shared piped and/or standpipe water (14%, slightly higher than 12% in 2006) as there is very few distribution systems in rural areas. Similar to access to water, access to improved sanitation systems depends more on the geographic location, less on the vulnerability status, of households. Interestingly, however, the link between the vulnerability status and access to improved sanitation systems is stronger than in the case of access to improved water systems, particularly in urban area. Around 56.5% of households in rural areas rely solely on a pit latrine (private/shared), compared to 11.8% and 22.7% in Port Vila and Luganville, respectively. Access to sanitation did not improve between 2006 and 2010. (Vanuatu Hardship & Poverty Report 2012 pg 15&16), the data used is from the 2010 HIES household income and Expenditure Survey.

I will also be looking at the Samoa Hardship and Poverty Report –Analysis of the 2013/14 Household Income and Expenditure Survey (Drinking water and Sanitation chapter 7) to make comparisons between Vanuatu and Samoa.

In Samoa the survey captures metered and non-metered pipes into households for drinking water. It shows 56.4% of households have metered and 24.4% of households have unmetered pipes for drinking water (Samoa hardship and poverty report pg 19)



While 82.2% of all households have access to their own flushed toilets, when we compare with Vanuatu only 16.7% households have private piped water while 13.5% households have their own flush toilets.

About 6.9 million people in Pacific Island countries cannot access improved sanitation. More than 4.8 million cannot access improved water supplies. Basic sanitation and safe drinking water as essential to alleviate poverty attain sustainable economic and health development, and delivery primary health care. Without basic sanitation, poor hygiene and unsafe water supplies can lead to sickness, high health-care costs and death, Pacific island countries face critical climate change challenges. These countries are among the most vulnerable in the world to increasing climate variability and extreme weather conditions. (Source: report from Pacific Community, World Health Organisation, UN Human Settlements Program, UN Children's Fund)

Oxfam is supporting the installation of more water and sanitation services around Vanuatu. One of its aims is that all students and local communities will have access to safe water and sanitation facilities provided at the rural training centres. This allows the entire community to enjoy improved health and hygiene.

## DATA COLLECTION

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I will be using the 2009 and 2016 census data. There are always non sampling errors from the census and survey data. For instance people might not want to say that they don't have a flush toilet because they think it's embarrassing for them or other reasons would be because other households have flush toilet so they themselves wanted to report that they also have a flush toilet. So I will be looking at the levels of non-response questions and anything that can be related to data quality. My objectives will be looking at the main key variables: main type of drinking water source by household and also main type of toilet used by household to see the differences between both years 2009 and 2016. Then I will have to see whether they have better access to improved drinking water source and also have access to improved sanitation facilities. I will see whether it is broken down by urban/rural locations.

## LEGAL OR ETHICAL ISSUES

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The data I am going to use is census data so there are always response burdens because it is face to face interview with the respondents. The confidentiality and the privacy are being covered because the census is governed by the Census Act which is part of the Statistics Act of 1974 Cap 83 .This report is written and figures are being published in aggregated format that does not disclose the identification of an individual or an organization.

During censuses Enumerators have been trained really well in how to collect information in the field. As part of their training they were being taught how to introduce themselves to household heads and to brief household heads of what they are currently doing and why they are collecting such information and what the information will be used for by the Statistics office and the government as a whole.

For my report I am using secondary use data because the two census report have already been officially released by the National Statistics Office so that is why I am re using the data for my analysis in my report.

## DATA QUALITY

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For 2009 population census – in order to obtain accurate statistics from household based survey such as the Census, the data must be free as possible from errors and inconsistencies. Therefore before, any final Census database were created and tabulation programs run, the data was checked for errors and edited so that important data items(that is, the answers to key census questions) were valid and consistence. (2009 Population census report, pg 216)

## CONSTRAINTS/LIMITATIONS

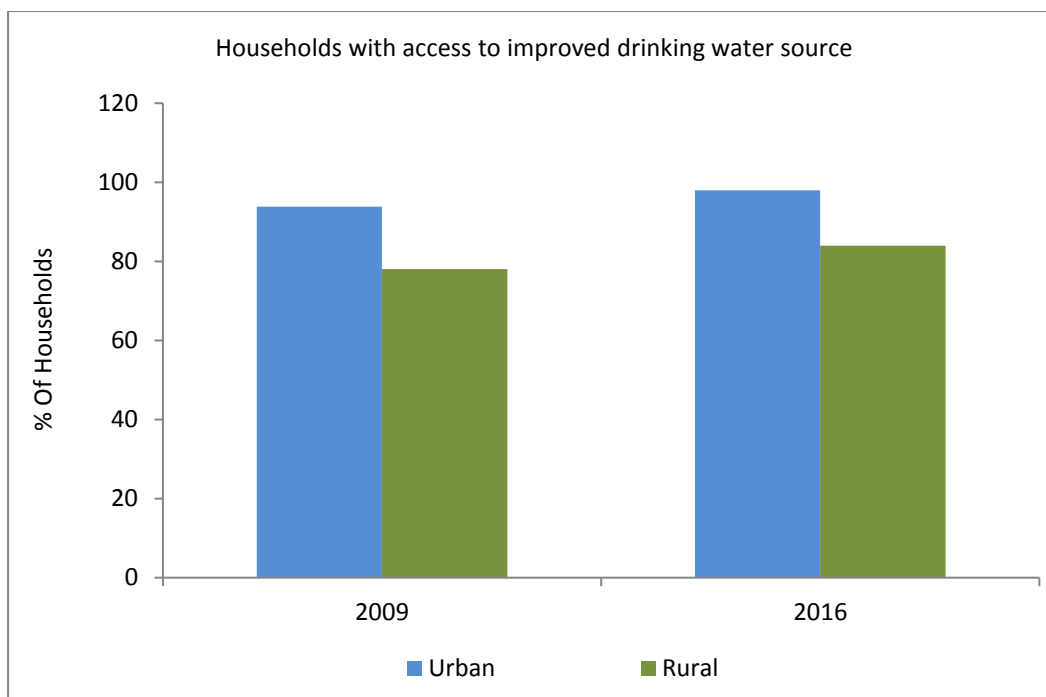
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By looking at the census data that I am going to use the data is already broken down by urban/rural and all the variables needed are there, all the values that I will be using are all in this data set. But while doing my analysis I have come to find out that the classifications used for main source of water in 2009 is different from the ones used in 2016 not all of them but only few of them. That is the reason why I cannot compared both years by type of main source of water to see the differences, I can only compared the improved and not improved for both years because the classifications of improved and not improved main source of water will be the same as I group all the improved sources together and the not improved sources together.

## RESULTS

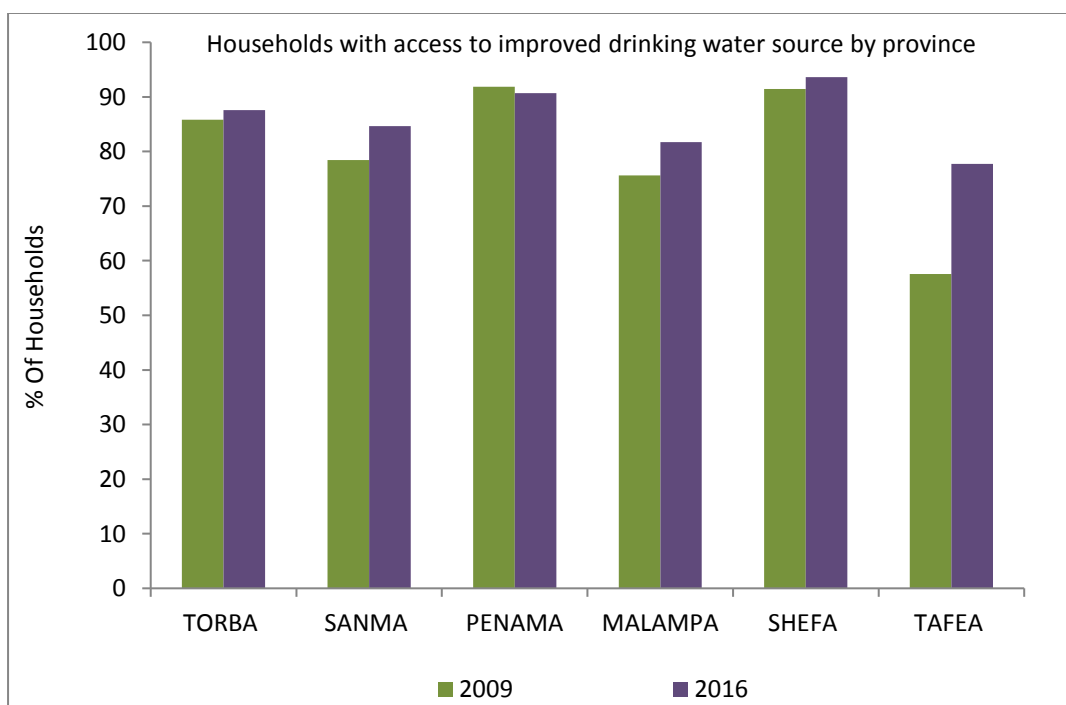
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Out of 47,373 private households in Vanuatu in 2009, 10,891 (94%) households in urban areas have access to an improved drinking water source compared to 27,916 (78%) households in the rural areas. These figures show that over 90% households in urban and almost 80% households in rural areas have access to improved drinking water source. By 2016, out of 55,285 private households the figure shows that an increased of 13,702 (98%) of households in the urban areas have access to improved drinking water source. This figure compares to also an increase of 34,684 (84%) for households in the rural areas. The census data for both years' shows that both urban and rural households have better access to improved drinking water source by 2016 (refer to figure 1 below)



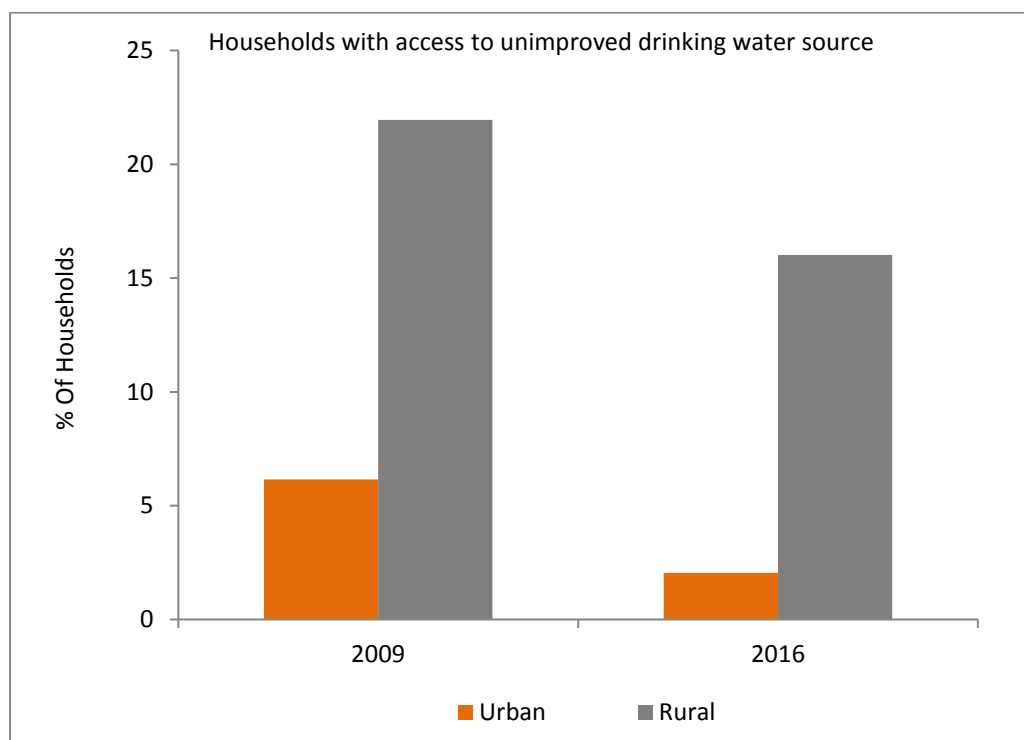
#### IMPROVED DRINKING WATER BY PROVINCE

Figure 2, shows that throughout all the six provinces of Vanuatu, Shefa province has shown that households have great improvement in access to better improved drinking water source from 2009 to 2016, followed by Penama province, Torba Province, Sanma province then Malampa province. Except for Tafea province the figure has been slowly picking up from 2009 where only 58% households have better access to improved drinking water source then the figure slowly increases to 78% in 2016. The figures are being reported in both censuses between 2009 and 2016.



## HOUSEHOLDS WITH ACCESS TO UNIMPROVED WATER

Figure 3, indicates that in 2009 only 6% of households in urban areas have access to unimproved drinking water source, then the figure further decreased in 2016 to only 2% of households. On the other hand in rural areas in 2009, 22% of households have access to unimproved drinking water source the figure then decreased in 2016 to 16% households. The data's are indicating that most of the households in Vanuatu have better access to improved drinking water source between 2009 and 2016.



## WHERE ACCESS TO IMPROVED DRINKING WATER SOURCE IS IMPROVING

Provinces	2009	2016	Change
	%	%	
TORBA	86	88	2
SANMA	78	85	6
PENAMA	92	91	-1
MALAMPA	76	82	6
SHEFA	91	94	2
TAFEA	58	78	20

Source: Main Censuses reports 2009&2016

There is greater improvement to better access to improved drinking water source for households throughout the six provinces; in Torba is up to 2 percentage point from 86% in 2009 to 88% in 2016, Sanma province is up to 6 percentage points from 78% in 2009 to 85% in 2016. In Penama province it has been down by 1 point from 92% in 2009 to 91% in 2016. This decline may be due to some households moving out and relocation in another province especially to Sanma or Shefa province as data from 2009 shows that the number of private households in these two provinces has increased to

more households in 2016. Malampa province is up with 6 points from 76% in 2009 to 82% in 2016, in Shefa province it is up to 2 points from 91% in 2009 to 94% in 2016. The highest positive improvement is shown for Tafea province which is up to 20 points from 58% in 2009 to 78% in 2016, back in 2009 only a half of the Tafea households have access to improved drinking water source but by 2016 it shows that more households are having better access to improved drinking water source.

## STATISTICAL TABLES

The statistical tables give counts, percentage of main source of drinking water by urban and rural areas, figures from the latest census in 2016 and the previous census 2009 for comparison.

\*Note that the categories or variables for the main source of water types being used in the two censuses are different from each other.

### MAIN SOURCE OF DRINKING WATER

The table below shows that more households (16,373) used piped shared water as their main source of drinking water followed by rainwater /tank private which is accounted for (10,385) a total for both urban and rural areas. The least popular type of main source of drinking water is bottled water which is accounted for only 314 households.

**Table 1: Count of Main source of drinking water by Urban/Rural, 2016**

	Piped private	Piped shared	Village stand pipe	Rainwater well/tank private	Rainwater well/tank shared	Bottle water	River stream, lake and spring	Underground borehole/well	Other	Total
Urban	5,410	6,044	167	1,269	623	189	44	224	19	13,989
Rural	3,816	10,329	2,178	9,116	9,120	125	4,458	1,979	175	41,296
<b>Total</b>	<b>9,226</b>	<b>16,373</b>	<b>2,345</b>	<b>10,385</b>	<b>9,743</b>	<b>314</b>	<b>4,502</b>	<b>2,203</b>	<b>194</b>	<b>55,285</b>

Source: Census report, 2016

Table 1-1 is shows that out of the total of 55,285 private households 48,386 households have access to improved drinking water source. The improved water source types shows that 16,373 households used piped shared water, followed by rain water/tank private which is used by 10,385 households. The rainwater well/tank shared is accounted for 9,743 households and the piped private is used by 9,226 households, while the village standpipe is used by 2,345 households. The least common water source type is the bottle water (processed from shops) which only 314 households reported that they have used it.

**Table 1-1: Households with access to improved drinking water source, 2016**

Region	Total	Piped private	Piped shared	Village standpipe	Rain water/tank private	Rainwater well/tank shared	Bottle water (processed from shops)
<b>VANUATU</b>	<b>48,386</b>	<b>9,226</b>	<b>16,373</b>	<b>2,345</b>	<b>10,385</b>	<b>9,743</b>	<b>314</b>
<b>URBAN</b>	<b>13,702</b>	<b>5,410</b>	<b>6,044</b>	<b>167</b>	<b>1,269</b>	<b>623</b>	<b>189</b>
<b>RURAL</b>	<b>34,684</b>	<b>3,816</b>	<b>10,329</b>	<b>2,178</b>	<b>9,116</b>	<b>9,120</b>	<b>125</b>
<b>TORBA</b>	<b>1,717</b>	<b>58</b>	<b>404</b>	<b>236</b>	<b>485</b>	<b>527</b>	<b>7</b>
<b>SANMA</b>	<b>9,060</b>	<b>1,481</b>	<b>2,277</b>	<b>743</b>	<b>2,561</b>	<b>1,975</b>	<b>23</b>
<b>PENAMA</b>	<b>6,311</b>	<b>468</b>	<b>1,205</b>	<b>541</b>	<b>1,876</b>	<b>2,215</b>	<b>6</b>
<b>MALAMPA</b>	<b>7,268</b>	<b>849</b>	<b>2,073</b>	<b>178</b>	<b>1,974</b>	<b>2,175</b>	<b>19</b>
<b>SHEFA</b>	<b>18,639</b>	<b>5,627</b>	<b>6,792</b>	<b>420</b>	<b>3,175</b>	<b>2,377</b>	<b>248</b>
<b>TAFEA</b>	<b>5,326</b>	<b>678</b>	<b>3,622</b>	<b>227</b>	<b>314</b>	<b>474</b>	<b>11</b>

Source: Census report, 2016

Table below shows that for piped private 38.7% is shown for urban areas and 9.2% is shown for rural areas while for piped shared 43.2% is shown for urban and only 25% is shown for rural areas. Rainwater well/tank private and shared is higher in rural areas with 22.1% each. In urban areas this type of water supply was only 9.1% and 4.5%. The data is showing that there are differences between urban and rural concerning the types of water sources that are being used it does depend much on the capacity of each households how they can afford to have they own metered piped water or purchase they own water tanks or have access to piped water that has been install by a government funded project or access to community or village stand pipe.

**Table 1-2: Percentage of Main source of drinking water by Urban/Rural, 2016**

	Piped private	Piped shared	Village stand pipe	Rainwater well/tank private	Rainwater well/tank shared	Bottle water	River stream, lake and spring	Underground borehole/well	Other	Total
<b>Urban</b>	<b>38.7</b>	<b>43.2</b>	<b>1.2</b>	<b>9.1</b>	<b>4.5</b>	<b>1.4</b>	<b>0.3</b>	<b>1.6</b>	<b>0.1</b>	<b>100</b>
<b>Rural</b>	<b>9.2</b>	<b>25.0</b>	<b>5.3</b>	<b>22.1</b>	<b>22.1</b>	<b>0.3</b>	<b>10.8</b>	<b>4.8</b>	<b>0.4</b>	<b>100</b>
<b>Total</b>	<b>16.7</b>	<b>29.6</b>	<b>4.2</b>	<b>18.8</b>	<b>17.6</b>	<b>0.6</b>	<b>8.1</b>	<b>4.0</b>	<b>0.4</b>	<b>100</b>

Source: Census report, 2016

The table below indicates that households in rural areas have more access to piped shared with (8,777) households while in Urban only (4,217) households have access to pipe shared. For piped private a total of (5,012) households in urban have access to it compared to only (3,426) households in rural. Most Households in rural have access to household tank 6,368 and village tank (8,493)

**Table 1-3: Count of Main source of drinking water by Urban/Rural, 2009**

	Piped private	Piped shared	Village standpipe	Well protected	Well unprotected	Household tank	Village tank	Bottle water	River, lake, spring	Others	Total
<b>Urban</b>	5,012	4,217	26	338	96	762	632	242	30	251	11,606
<b>Rural</b>	3,426	8,777	505	1,793	476	6,368	8,493	347	4,964	618	35,767
<b>Total</b>	8,438	12,994	531	2,131	572	7,130	9,125	589	4,994	869	47,373

Source: Census report, 2009

The table below shows that out of the total of 47,373 households in 2009, 38,807 households have access to improved drinking water source. More households 12,994 used piped shared water, followed by village tank which is accounted for 9,125 households and 8,438 households used piped private. A total of 7,130 households used household (HH) tank while 589 households reported they purchase water from the shops while the least used water source is the village standpipe which is used by 531 households.

**Table 1-4 Households with improved drinking water source types, 2009**

Region	Total	Piped private	Piped shared	Village standpipe	HH tank	Village tank	Bottle water
<b>VANUATU</b>	<b>38,807</b>	<b>8,438</b>	<b>12,994</b>	<b>531</b>	<b>7,130</b>	<b>9,125</b>	<b>589</b>
<b>URBAN</b>	<b>10,891</b>	5,012	4,217	26	762	632	242
<b>RURAL</b>	<b>27,916</b>	3,426	8,777	505	6,368	8,493	347
<b>TORBA</b>	<b>1,516</b>	116	369	-	349	666	16
<b>SANMA</b>	<b>7,226</b>	1,105	2,098	167	1,718	1,878	260
<b>PENAMA</b>	<b>6,082</b>	452	1,427	134	1,363	2,645	61
<b>MALAMPA</b>	<b>6,044</b>	559	1,965	106	1,357	2,006	51
<b>SHEFA</b>	<b>14,569</b>	5,554	5,076	97	2,094	1,556	192
<b>TAFEA</b>	<b>3,370</b>	652	2,059	27	249	374	9

Source: Census report 2009

Table 1-5 shows that in 2009, 43.2% of urban households had private piped water compared with 9.6 % of rural households. Followed by 36.3 % of urban households had piped shared compared with 24.5% of rural households. The access to village tank is quite high in rural areas with 23.7% households had access to it while 5.4% households in urban had access to a village tank. By comparing the figures with the 2016 census it shows that the use of private piped water was 9.2% in rural areas and has decline in proportion to 9.6% in 2009. This could be due to the fact that more households moved to areas where they can only have access to pipe shared water or village standpipe etc. The data shows that in 2009, 82% households in Vanuatu have access to improved drinking water source the data increased to 88% in 2016. These positive changes continue to show that the number of households having access to better drinking water source is increasing over the years.

The Vanuatu Government through its Vanuatu Infrastructure Strategic Investment Plan 2015 – 2024 has initiated a list of bundled sector projects mostly rural projects needing development partner funding for rural roads, domestic airport, local jetties and water supply (Report- Vanuatu Infrastructure Strategic Investment Plan 2015-2024)

**Table 1-5: Percentage of Main source of drinking water by Urban/Rural, 2009**

	Piped private	Piped shared	Village standpipe	Well protected	Well unprotected	Household tank	Village tank	Bottle water	River, lake, spring	Others	Total
Urban	43.2	36.3	0.2	2.9	0.8	6.6	5.4	2.1	0.3	2.2	100
Rural	9.6	24.5	1.4	5.0	1.3	17.8	23.7	1.0	13.9	1.7	100
Total	17.8	27.4	1.1	4.5	1.2	15.1	19.3	1.2	10.5	1.8	100

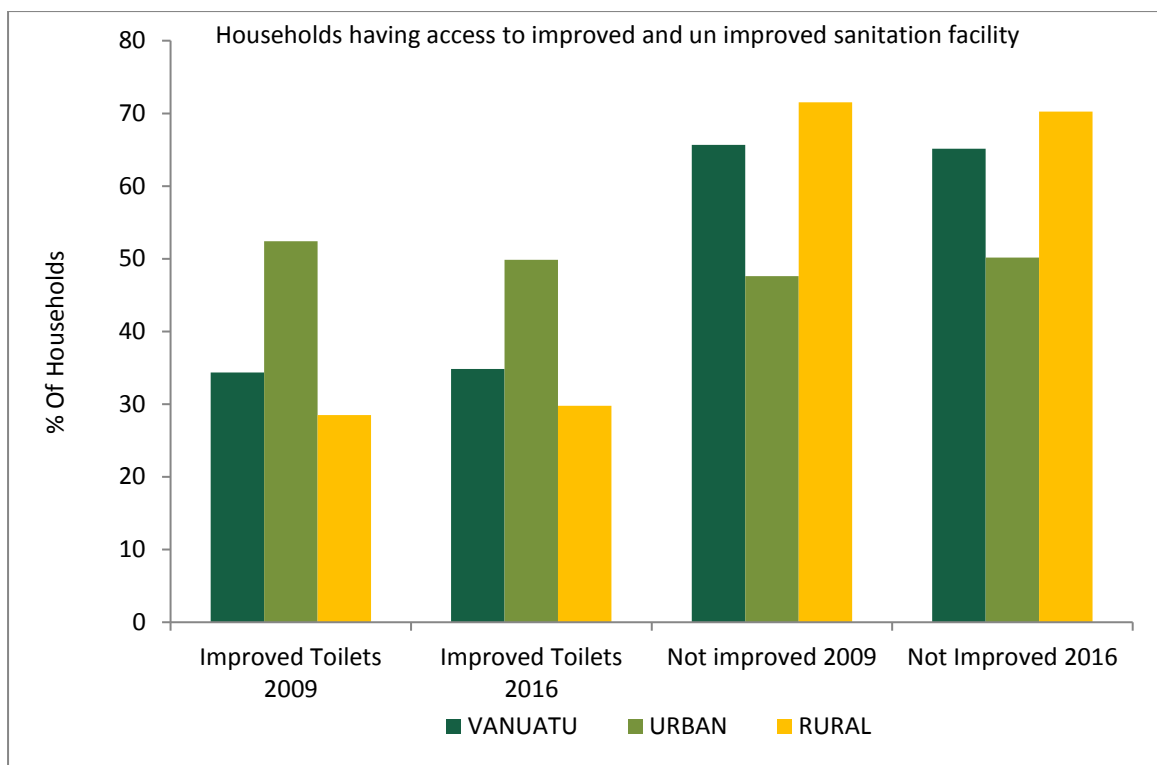
Source: Census report, 2009

#### SANITATION (MAIN TOILET TYPES USED)

Figure 3, indicates the comparisons between 2009 and 2016 it shows that out of total private households of 47,373 in 2009 only 16,270 (34%) households have access to an improved sanitation while in 2016 out of total private households of 55,285; again only 19,263 (35%) households have access to an improved sanitation facility. These decreases indicate that households cannot afford to have access to improved sanitation facility maybe due accessibility to a water supply system. In urban areas in 2009 out of a total household of 6,082 (52%) have access to an improved sanitation facility, while in rural 10,188 (28%) have access to improved sanitation facility it is again due to the fact that maybe households could not afford to have access to improve sanitation facility . In 2016 it shows that out of a total households of 6,974 (50%) in urban areas which is a decreased compared to 2009 could be due to the fact that some households could not afford to have access to improve toilets in urban areas. While in rural areas a total household of 12,289 (30%), have access to an improved sanitation facility.

On the other hand access to an unimproved sanitation facility is still very high in Vanuatu for both years in 2009 a total household of 31,103 (66%) and in 2016 a total household of 36,022 (65%) still using un improve sanitation facility. By looking at the urban areas in 2009, 5,524 (48%) households use un improve sanitation facility the figure then increased to 7,015 (50%) in 2016 the increased could be due to addition to more households in urban areas in 2016. For rural areas it shows that in 2009, 25,579 (72%) still use unimproved sanitation facility and in 2016 29,007 (70%) households used un improved sanitation facility (see graph figure 2 below).





## STATISTICAL TABLES

The statistical tables give counts, percentage of main type of Toilet by Urban and Rural, figures from the latest census in 2016 and the previous census 2009 for comparison.

Table below shows pit latrine private is used among 36.9% households in the Vanuatu in 2009 compared to 31.1% in 2016, followed by pit latrine shared which is used among 10.3% households in 2009 then increased to 12.6% households in 2016. VIP private is accounted for 14.4% households in 2009 then was decreased to 7.1% households in 2016. Flush private is accounted for 14.6% households in 2009 compared to 13.5% in 2016, it has shown a decreased in 2016 it could be due to the fact that some households could not avoid to used flushed private or maybe due to damaged caused by cyclone pam that causes damaged to the island of Efate where Port Vila is situated, destroying some building or houses that is the reason why the figure has decreased in 2016.

**Table 1 - 6: Comparison on type of toilet used in 2009/2016 in Vanuatu**

<b>Toilet Type</b>	<b>2009</b>	<b>%</b>	<b>2016</b>	<b>%</b>
<b>Pit Latrine</b>				
Private	17,494	36.9	17,203	31.1
Shared	4,893	10.3	6,944	12.6
<b>VIP</b>				
Private	6,802	14.4	7,910	7.1
Shared	3,749	7.9	4,835	4.7
<b>Flush</b>				
Private	6,905	14.6	7,444	13.5
Shared	3,048	6.4	4,357	7.9
<b>Water Seal</b>				
Private	2,563	5.4	3,909	7.1
Shared	1,555	3.3	2,608	4.7
<b>None</b>	364	0.8	75	0.1

Source: Census report, 2016

Table below indicates the improved types of sanitation facility used in the census; it shows that out of total households of 55,285 in 2016 only 19,263 households have access to an improved sanitation facility. The most commonly used improved sanitation type is the flush private and it shows that 7,444 households have access to it , while the second commonly used sanitation type is the VIP private which is used by 7,910 households and the least used sanitation facility type is the water sealed private which 3,909 households have access to it.

**Table 1-7 improved sanitation facility types, 2016**

<b>Region</b>	<b>Total</b>	<b>Flush private</b>	<b>Water sealed private</b>	<b>VIP private</b>
<b>VANUATU</b>	<b>19,263</b>	7,444	3,909	7,910
<b>URBAN</b>	<b>6,974</b>	5,489	822	663
<b>RURAL</b>	<b>12,289</b>	1,955	3,087	7,247
<b>TORBA</b>	<b>638</b>	70	56	512
<b>SANMA</b>	<b>3,352</b>	1,250	810	1,292
<b>PENAMA</b>	<b>1,563</b>	145	29	1,389
<b>MALAMPA</b>	<b>3,281</b>	143	1,354	1,784
<b>SHEFA</b>	<b>8,832</b>	5,726	1,550	1,556
<b>TAFEA</b>	<b>1,585</b>	98	110	1,377

Source: Census report, 2016

Table below shows 39.9 % of rural household had pit latrine private compared with 5.2% of urban households. The used of flush private shows 39.2% of urban households had access to it compared to 4.7% of rural households while 26.9% of urban households had flush shared compared with 1.4% of rural households. Access to VIP private in rural households is 17.5% compared to 4.7% of urban households.

**Table 1 – 8: Percentage of toilet types by Urban/Rural, 2016**

	Flush Private	Flush Shared	Water seal private	Water seal shared	VIP private	VIP shared	Pit latrine private	Pit latrine shared	None	Total
<b>Urban</b>	39.2	26.9	5.9	9.2	4.7	3.9	5.2	4.9	0.0	100
<b>Rural</b>	4.7	1.4	7.5	3.2	17.5	10.4	39.9	15.2	0.2	100
<b>Total</b>	13.5	7.9	7.1	4.7	14.3	8.7	31.1	12.6	0.1	100

Source: Census report, 2016

#### WHERE ACCESS TO IMPROVED SANITATION FACILITY NEEDS IMPROVEMENT BY PROVINCES

The table below shows that Torba province is down by 14 points from 46% in 2009 to 33% in 2016 it is a high decrease maybe household's cannot afford to have access to improve sanitation facility, in Sanma province it is also down by 3 points from 35% in 2009 to 31% in 2016. Penama province has shown improvement by 13 points from 10% in 2009 to 22% in 2016, while in Malampa province it also showed improvement by 8 points from 29% in 2009 to 37% in 2016. In Shefa province is down by 3 points from 47% in 2009 to 44% in 2016 and for the last province Tafea it is also down by 8 points from 31% in 2009 to 23% in 2016. The decreases could be due to damaged cause by the cyclone Pam in 2016, because these are the two provinces that were hit by cyclone pam.

Province	2009	2016	Change
	%	%	
<b>TORBA</b>	46	33	-14
<b>SANMA</b>	35	31	-3
<b>PENAMA</b>	10	22	13
<b>MALAMPA</b>	29	37	8
<b>SHEFA</b>	47	44	-3
<b>TAFEA</b>	31	23	-8

#### MAIN TOILET TYPES

Figure 4 shows the toilet types used in Vanuatu in 2016 showing pit latrine use is accounted for 31.1%, followed by VIP private which is used by 14.3% households, while flush private is used by 13.5% household and pit latrine shared is used by 12.6% households in Vanuatu.

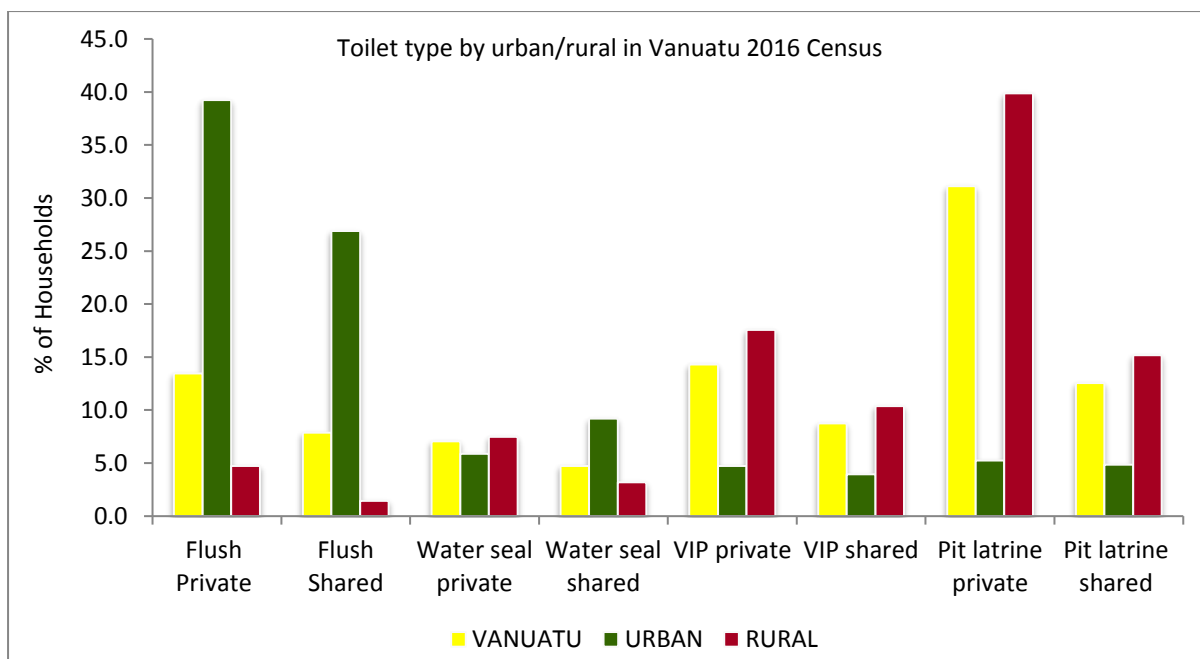


Table 1-6 shows that the use of pit latrine shared is commonly used in the rural households accounted for (16,594) while VIP private is used among (6,142) households in the rural. Households (5,023) in the urban mostly have access to flush private followed by flush shared which is used among (2,590) households.

**Table 1-9: Count of toilet types by Urban/Rural, 2009**

	Flush Private	Flush Shared	Water seal private	Water seal shared	VIP private	VIP shared	Pit latrine private	Pit latrine shared	None	Total
<b>Urban</b>	5,023	2,590	399	735	660	759	900	534	6	11,606
<b>Rural</b>	1,882	458	2,164	820	6,142	2,990	16,594	4,359	358	35,767
<b>Total</b>	6,905	3,048	2,563	1,555	6,802	3,749	17,494	4,893	364	47,373

Source: Census report, 2009

The table below indicates the percentages of toilet type used by households which show that the commonly used toilets in the rural are pit latrine private (95%), VIP private (90%) and VIP shared (80%). In the urban area the used of flush shared is high among (85%) on the other hand (73%) households in urban used flush private.

**Table 1-10: Percentage of toilet types by Urban/Rural, 2009**

	Flush Private	Flush Shared	Water seal private	Water seal shared	VIP private	VIP shared	Pit latrine private	Pit latrine shared	None	Total
<b>Urban</b>	43.3	22.3	3.4	6.3	5.7	6.5	7.8	4.6	0.1	100
<b>Rural</b>	5.3	1.3	6.1	2.3	17.2	8.4	46.4	12.2	1.0	100
<b>Total</b>	<b>14.6</b>	<b>6.4</b>	<b>5.4</b>	<b>3.3</b>	<b>14.4</b>	<b>7.9</b>	<b>36.9</b>	<b>10.3</b>	<b>0.8</b>	<b>100</b>

Source: Census report, 2009

The 2009 and 2016 population census collected information on toilet facilities being used by households in Vanuatu it shows that 52% of households in the urban areas have access to improved toilets while (50%) in 2016. In rural areas 28% households have access to improved toilet in 2009 and 30% households in 2016. Households with access to not improved toilet is still very high in rural for both years showing (72%) in 2009 while a slight decreased in 2016 accounted for (70%).

## CONCLUSION

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This project report is based on the analyses of the 2009 Population and Housing Census in comparison with the Post Mini Pam Census 2016. The comparative analysis of the two most recent Censuses reveals differences over the period of 2009 to 2016. These two reports have helped me a lot to answer my policy questions.

- Firstly, in urban areas households that have access to improved drinking water source in 2009 is 94% the figure increased to 98% in 2016. While in the rural areas 78% of households have access to improved drinking water source in 2009 and increased to 84% in 2016
- Secondly in 2009 the main sources of drinking water in urban shows that more households uses piped private as their main source of drinking water with 43.2%, piped shared which is accounted for 36.3% households in urban while 24.5% is for rural households. The third common use drinking water source is village tank which is accounted for 23.7% in the rural households compared to 5.4% households in urban households. Household tank is used among 17.8% households in the rural compared to 6.6% in the urban. Also the use of river, lake, spring is accounted for 13.9% in the rural compared to 0.3% in the urban areas.
- In 2016 the main sources of drinking water by urban is piped shared which is used among 43.2% households compared to 25.0% households in the rural. Piped private is used among 38.7% households in urban compared to 9.2% households in rural. Rainwater well/tank private and shared is used among 22.1% for both in the rural households. River, stream, lake and spring is used among 10.8% households in the rural households also the underground borehole/well is accounted for 4.8% households in the rural compared to 1.6% households in the urban.
- Thirdly households in urban that have access to an improved toilet facility in 2009 are 52% while in 2016 the figure decrease to 50%. In rural areas households with access to improve sanitation facility in 2009 is 28% then increased to 30% in 2016. Households that have access

to not improved toilet in 2009 shows that in urban is (48%) followed by a slight increase to (50%) in 2016. In rural, households that have access to not improved toilets in 2009 is (72%) then it decreases to (70%) in 2016.

- Lastly while comparing the two years by toilet types used by households it shows that pit latrine use is still very high for both years as more than (17,000) households still uses pit latrine but has gone down from 47.3% in 2009 to 43.7% of households in 2016. The second common use toilet type is VIP private which indicates that in 2009 (6,802) 14.4% households have access to it while in 2016 the figure increase to (7,910) 7.1% households. The third toilet type that households use is flush private which shows that in 2009 (6,905) 14.6% households have access to it the figure increases to (7,444) 13.5% in 2016.
- While comparing the data with the Samoa Hardship and Poverty Report – Analysis of the 2013/14 it shows that around 56.4% and 24.4% of all households in Samoa have access to meter and non-metered drinking water into households respectively (source Samoa hardship and poverty report pg 74) the figure is still high when compared to census figures for 2016. Even in Samoa around 82.2% of all households have access to own flush toilets compared to households in Vanuatu (Source Samoa Hardship and Poverty report pg 74)

## POLICY RECOMMENDATIONS

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### *To the Government*

I therefore recommended that:

- The government should focus their resources more on water and sanitation as it is very important that every household throughout Vanuatu should have a better access to improve drinking water source and improve toilet facility.
- In rural areas higher number of households still uses river, stream, lake and spring and also underground borehole /well as their main source of drinking water source. So the government should focus more in the rural areas to build in proper water system for households to have easy access to.
- The government should work together with NGO's e.g Oxfam as it is supporting the installation of more water and sanitation services around Vanuatu. This will allow the entire community to enjoy improved health and hygiene.
- Government should focus their resources on improving sanitary conditions in both urban and rural areas because the highest percentages of households without improved sanitary are found in rural areas.

## References

- Vanuatu Housing and Population Censuses, 2009 and 2016, Author VNSO release date April 2011 and 21/07/2017

- Household Income and Expenditure Survey 2010 (HIES )

- Vanuatu Hardship & Poverty Report 2012

- Samoa Hardship and Poverty Report – Analysis of the 2013/14 household Income and Expenditure Survey (Chapter 7: Drinking water and Sanitation)

[http://www.wpro.who.int/publications/PUB\\_9789290614012/en/](http://www.wpro.who.int/publications/PUB_9789290614012/en/)

<https://reliefweb.int/report/world/sanitation-drinking-water-and-health-pacific-island-countries-2015-update-and-future>

<https://www.oxfam.org.nz/what-we-do/issues/water-for-survival/water-and-basic-rights/water-in-the-pacific>

## APPENDIX A

### MAIN SOURCE OF DRINKING WATER SOURCES

We have included the following types of drinking water under the category Improved drinking water:

- Piped – private or shared
- Village standpipe
- Rainwater/tank – private or shared
- Bottle water ( processed water from shops )

In contrast, Not improved drinking water sources are:

- River, stream, creek, lake and spring
- Underground borehole or well
- Others

Main source of drinking water (variables used in 2009)

- Piped private
- Piped shared
- Village stand pipe
- Well protected private
- Well protected shared
- Household tank
- Village tank
- Bottled water (process water from shops)
- Surface water
- Other

Main source of drinking water (variables used in 2016)

- Piped private
- Piped shared
- Village stand pipe



- Rainwater well/tank private
- Rainwater well/tank shared
- Bottle water
- Surface water
- Underground borehole/well
- Other

#### MAIN TOILET TYPES

Improved sanitation is these following kinds of toilets as defined by the census.

- Flush toilet
- Water seal
- Ventilated improved pit latrine ( abbreviated as VIP latrine)
- Pit latrine with slab

Any of the above that is “shared “are NOT counted as improved sanitation, including that of open pit latrine and no toilet facilities

Main toilet type as collected in the census

- Flush private
- Flush shared
- Water seal private
- Water seal shared
- Ventilated Improved Pit Latrine Private (VIP)
- Ventilated Improved Pit Latrine Shared (VIP)
- Pit latrine private
- Pit latrine shared
- None

STATISTICAL SUMMARY TABLES

**Households by main source of drinking water and by province 2009**

Region	Total	Piped private	Piped shared	Village standpipe	Well protected	Well unprotected	HH tank	Village tank	Bottle water	River lake spring	Other
<b>VANUATU</b>	<b>47,373</b>	<b>8,438</b>	<b>12,994</b>	<b>531</b>	<b>2,131</b>	<b>572</b>	<b>7,130</b>	<b>9,125</b>	<b>589</b>	<b>4,994</b>	<b>869</b>
<i>URBAN</i>	<i>11,606</i>	<i>5,012</i>	<i>4,217</i>	<i>26</i>	<i>338</i>	<i>96</i>	<i>762</i>	<i>632</i>	<i>242</i>	<i>30</i>	<i>251</i>
<i>RURAL</i>	<i>35,767</i>	<i>3,426</i>	<i>8,777</i>	<i>505</i>	<i>1,793</i>	<i>476</i>	<i>6,368</i>	<i>8,493</i>	<i>347</i>	<i>4,964</i>	<i>618</i>
TORBA	1,766	116	369	-	1	2	349	666	16	209	38
SANMA	9,213	1,105	2,098	167	336	51	1,718	1,878	260	1,249	351
PENAMA	6,620	452	1,427	134	20	-	1,363	2,645	61	489	29
MALAMPA	7,991	559	1,965	106	858	358	1,357	2,006	51	655	76
SHEFA	15,930	5,554	5,076	97	573	101	2,094	1,556	192	449	238
TAFEA	5,853	652	2,059	27	343	60	249	374	9	1,943	137

Source: Census report, 2009

**Households with unimproved drinking water source types, 2009**

Region	Total	Well protected	Well unprotected	River lake spring	Other
<b>VANUATU</b>	<b>8,566</b>	<b>2,131</b>	<b>572</b>	<b>4,994</b>	<b>869</b>
<i>URBAN</i>	<i>715</i>	<i>338</i>	<i>96</i>	<i>30</i>	<i>251</i>
<i>RURAL</i>	<i>7,851</i>	<i>1,793</i>	<i>476</i>	<i>4,964</i>	<i>618</i>
TORBA	250	1	2	209	38
SANMA	1,987	336	51	1,249	351
PENAMA	538	20	-	489	29
MALAMPA	1,947	858	358	655	76
SHEFA	1,361	573	101	449	238
TAFEA	2,483	343	60	1,943	137

Source: Census report, 2009

### Households by main source of drinking water and by province, 2016

Region	Total	Piped private	Piped shared	Village standpipe	Rain water/tank private	Rainwater well/tank shared	Bottle water (processed from shops)	River stream, creek, lake, spring	Underground borehole/well	Other
<b>VANUATU</b>	<b>55,285</b>	<b>9,226</b>	<b>16,373</b>	<b>2,345</b>	<b>10,385</b>	<b>9,743</b>	<b>314</b>	<b>4,502</b>	<b>2,203</b>	<b>194</b>
<i>URBAN</i>	<i>13,989</i>	<i>5,410</i>	<i>6,044</i>	<i>167</i>	<i>1,269</i>	<i>623</i>	<i>189</i>	<i>44</i>	<i>224</i>	<i>19</i>
<i>RURAL</i>	<i>41,296</i>	<i>3,816</i>	<i>10,329</i>	<i>2,178</i>	<i>9,116</i>	<i>9,120</i>	<i>125</i>	<i>4,458</i>	<i>1,979</i>	<i>175</i>
TORBA	1,960	58	404	236	485	527	7	209	32	2
SANMA	10,704	1,481	2,277	743	2,561	1,975	23	1,406	225	13
PENAMA	6,959	468	1,205	541	1,876	2,215	6	544	96	8
MALAMPA	8,896	849	2,073	178	1,974	2,175	19	644	957	27
SHEFA	19,913	5,627	6,792	420	3,175	2,377	248	449	681	144
TAFEA	6,853	678	3,622	227	314	474	11	1,250	212	-

Source: census report, 2016

### Households with unimproved water sources by types, 2016

Region	Total	River stream, creek, lake, spring	Underground borehole/well	Other
<b>VANUATU</b>	<b>6,899</b>	<b>4,502</b>	<b>2,203</b>	<b>194</b>
<i>URBAN</i>	<i>287</i>	<i>44</i>	<i>224</i>	<i>19</i>
<i>RURAL</i>	<i>6,612</i>	<i>4,458</i>	<i>1,979</i>	<i>175</i>
TORBA	243	209	32	2
SANMA	1,644	1,406	225	13
PENAMA	648	544	96	8
MALAMPA	1,628	644	957	27
SHEFA	1,274	449	681	144
TAFEA	1,462	1,250	212	-

Source: Census report, 2016

### Households by main toilet facility and by province, 2009

Region	Total	Flush private	Flush shared	Water sealed private	Water sealed shared	VIP private	VIP shared	Pit latrine private	Pit latrine shared	None
<b>VANUATU</b>	<b>47,373</b>	<b>6,905</b>	<b>3,048</b>	<b>2,563</b>	<b>1,555</b>	<b>6,802</b>	<b>3,749</b>	<b>17,494</b>	<b>4,893</b>	<b>364</b>
<i>URBAN</i>	<i>11,606</i>	<i>5,023</i>	<i>2,590</i>	<i>399</i>	<i>735</i>	<i>660</i>	<i>759</i>	<i>900</i>	<i>534</i>	<i>6</i>
<i>RURAL</i>	<i>35,767</i>	<i>1,882</i>	<i>458</i>	<i>2,164</i>	<i>820</i>	<i>6,142</i>	<i>2,990</i>	<i>16,594</i>	<i>4,359</i>	<i>358</i>
TORBA	1,766	28	7	38	6	755	113	707	85	27
SANMA	9,213	1,160	260	489	332	1,558	779	3,837	755	43
PENAMA	6,620	172	37	40	14	418	90	4,512	1,295	42
MALAMPA	7,991	205	25	1,008	281	1,118	694	3,624	989	47
SHEFA	15,930	5,176	2,693	981	916	1,327	1,205	2,488	1,120	24
TAFEA	5,853	164	26	7	6	1,626	868	2,326	649	181

Source: Census report, 2009

### Households with Not improved toilet facility by types, 2009

Region	Total	Flush shared	Water sealed shared	VIP shared	Pit latrine private	Pit latrine shared	None
<b>VANUATU</b>	<b>31,103</b>	3,048	1,555	3,749	17,494	4,893	364
<b>URBAN</b>	<b>5,524</b>	2,590	735	759	900	534	6
<b>RURAL</b>	<b>25,579</b>	458	820	2,990	16,594	4,359	358
TORBA	945	7	6	113	707	85	27
SANMA	6,006	260	332	779	3,837	755	43
PENAMA	5,990	37	14	90	4,512	1,295	42
MALAMPA	5,660	25	281	694	3,624	989	47
SHEFA	8,446	2,693	916	1,205	2,488	1,120	24
TAFEA	4,056	26	6	868	2,326	649	181

Source: Census report, 2009

### Households by main toilet facility and by province, 2016

Region	Total	Flush private	Flush shared	Water sealed private	Water sealed shared	VIP private	VIP shared	Pit latrine private	Pit latrine shared	None
<b>VANUATU</b>	<b>55,285</b>	7,444	4,357	3,909	2,608	7,910	4,835	17,203	6,944	75
<b>URBAN</b>	<b>13,989</b>	5,489	3,761	822	1,286	663	551	733	679	5
<b>RURAL</b>	<b>41,296</b>	1,955	596	3,087	1,322	7,247	4,284	16,470	6,265	70
TORBA	1,960	70	17	56	19	512	278	813	194	1
SANMA	10,704	1,250	398	810	396	1,292	826	4,026	1,697	9
PENAMA	6,959	145	36	29	23	1,389	1,086	3,119	1,118	14
MALAMPA	8,896	143	55	1,354	396	1,784	662	3,355	1,127	20
SHEFA	19,913	5,726	3,813	1,550	1,718	1,556	1,005	2,731	1,801	13
TAFEA	6,853	98	38	110	56	1,377	978	3,159	1,007	18

Source: Census report, 2016

### Households with not improved toilet facility by types, 2016

Region	Total	Flush shared	Water sealed shared	VIP shared	Pit latrine private	Pit latrine shared	None
<b>VANUATU</b>	<b>36,022</b>	4,357	2,608	4,835	17,203	6,944	75
<b>URBAN</b>	<b>7,015</b>	3,761	1,286	551	733	679	5
<b>RURAL</b>	<b>29,007</b>	596	1,322	4,284	16,470	6,265	70
TORBA	1,322	17	19	278	813	194	1
SANMA	7,352	398	396	826	4,026	1,697	9
PENAMA	5,396	36	23	1,086	3,119	1,118	14
MALAMPA	5,615	55	396	662	3,355	1,127	20
SHEFA	11,081	3,813	1,718	1,005	2,731	1,801	13
TAFEA	5,256	38	56	978	3,159	1,007	18

Source: Census report, 2016