

ROTARIANS AGAINST MALARIA



LONG LASTING INSECTICIDAL NET DISTRIBUTION REPORT

MOROBE PROVINCE Tiwae Siassi and Markham Districts

Carried Out In Conjunction With The Provincial And District Government Health
Services And The Church Health Services Of Morobe Province

With Support From Against Malaria Foundation and Global Fund

18 September to 6 October 2017



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Executive Summary

Morobe is a coastal province of PNG with mountains inland with a few areas which are above 2000m which area considered malaria free. However, most of Markham and Tiwae Siassi Districts which are covered in this report are low lying except for a few villages in Markham which are at high altitude.

A survey and distribution of Long Lasting Insecticidal Nets (LLINs) to family level was carried out in the Morobe Province between 18 September to 25 October 2017 in the districts of Markham and Tiwae Siassi. Markham is a district accessible by road from Lae City whereas Tiwae Siassi District can only be reached by boat from Lae.

Table One shows the estimated population and actual population found in each district together with the number of LLINs distributed in each district. In total, 71,414 LLINs were distributed to a population of 136,040 people. This resulted in distribution of 48.4 nets for every 100 people in the province. However, it should be noted that about 1,200 people did not receive nets on Siassi Island due to Tribal Fights though these people should receive nets later when the tribal fight is over.

TABLE ONE – Population And Nets Distributed In 2017

District	Census Population 2000	Population Of Targeted Areas In 2014	Population Surveyed 2017	House Holds Surveyed 2017	Nets Issued 2017	Growth Rate Against 2013 Survey	Growth Rate Against 2000 Survey	Nets Distributed Per 100 People
Markham	49,369	77,881	85,847	17,084	41,441	3.30	3.31	48.3
Tewae Siassi	43,327	58,159	61,685	11,065	29,973	1.98	2.10	48.6
Totals	92,696	136,040	147,532	28,149	71,414	2.74	2.77	48.4

A further 138 LLINs were donated to health centres as nets were surplus to requirement and in most cases could not be easily returned to a central location. These nets would be used by pregnant mothers and for hospital beds where needed.

The overall operational cost of the programme was 263,904.78 Kina (Approximately US\$84,278) resulting in a cost of about 3.70 Kina or US\$1.18 per net delivered which was about 13% over the anticipated overall budget. There were overspends in car hire and fuel due to operations being delayed in some places due to very bad weather combined with bad roads which made some areas periodically inaccessible.

Apart from a Tribal Fight in Siassi island, and potential political unrest due to the recent Parliamentary National Elections of 2017 the distribution programme was carried out without any real difficulties apart from the usual poor infrastructure and bad weather.

Feedback from partners and communities suggest they were happy with the methodology used as the process appeared transparent to all concerned. However, as always, there were a few families who complained that they did not receive enough nets but for the most part it is believed that this was a result of families not fully understanding the allocation system used.

This distribution of LLINs was funded through a donation of 72,100 nets from the Against Malaria Foundation (AMF) with all delivery costs of distribution were covered by Global Fund (GF). The 1,200 people in Siassi who did not receive nets due to Tribal Fights should receive their nets during the Christmas period providing that the fighting has stopped.

The history of LLIN distribution in PNG and Morobe Province is discussed in Appendix One and the malaria situation and stratification of malaria in Morobe is discussed in Appendix Two and Appendix Three.



Fig.1 – Boat delivering nets to Tiwae Siassi (left) and the plane which delivered nets to Imane (right)

Background

Rotarians Against Malaria (RAM) is a nationally based organisation which was formed in 1997 by the Port Moresby Rotary Club in recognition of the tremendous burden that malaria imposes on the people of PNG.

RAM has a mandate to work in malaria control and the distribution of LLINs in Papua New Guinea and has been working for many years with the National Department of Health (NDOH) and other partners including bilateral agencies such as UNICEF and WHO (World Health Organisation), NGOs and church groups. (See Appendix One for full history of LLIN Distribution)



Fig.2 Training in Etep (Left) and Markham (Right)

Since 2010, RAM has been coordinating the distribution of nets to all districts and provinces on a three-year continuous cycle. This effectively means that RAM visits every village in PNG every three years. RAM is funded by the Global Fund and since 2017 also from Against Malaria Foundation which supplied PNG with all its nets and the Global Fund who funded the distribution and other administration costs.

Generally, LLINs have been distributed to household level throughout the country but when shortage of funds have occurred, different strategies of distribution have been used.

PNG can be roughly divided into four epidemiological zones.

- a) Areas which lie above 2000m in altitude will no longer receive LLINs as malaria transmission is not considered possible at these altitudes.
- b) Low lying areas of the country up to 1200m which have stable malaria endemicity and often have poor access to health continue to have household distributions.
- c) Areas from 1200 to 1600m which are considered of generally low transmission but may be epidemic in nature.
- d) Highlands regions between 1600 to 2000m in altitude such as Mount Hagen which have low malaria endemicity and generally easy access to health services.
- e) In urban and peri-urban areas such as Port Moresby and Lae which lie in low lying areas where access to health is considered easy.

As a result of this stratification and when funds had been reduced such as the end of 2014, areas above 2000m no longer received nets and areas from 1600 to 2000m only received under five campaigns in 2015 and 2016. However, due to the LLIN donation of Against Malaria Foundation (AMF) in 2017, all areas are now receiving household distribution of nets again except those areas above 2000m, and some urban areas such as NCD, Goroka, Mount Hagen and Mendi.

Only a few scattered villages of Morobe lies above 2000m, so therefore in 2017, for practical reasons, all areas in all districts were included for LLIN household distribution at a rate of approximately one nets for every two people.

One of the conditions of the AMF donation is that RAM would strengthen the way in which surveys are carried out. These new innovative processes are described in the Methodology Section with these methodologies now being carried out since the beginning of 2017. The major change to the survey methodology instigated by AMF is that previously a village meeting was called after a survey was carried out where names of family members was read out to ensure that all households had been surveyed. Instead of this process, a summary of every village surveyed is posted for 24 hours in a public place so that villages can ensure that all their family members have been included in the survey. As a further verification, RAM and local health staff team members carry out random house surveys of 6% of households in every village to ensure that the survey process has been carried out correctly.



Fig.3 – Training of Volunteers in Semo (Left) and verification list hanging in public place in Lablab (Right)

For household distributions, all LLIN distributions regardless of where they are carried out must include a survey and a distribution phase though implementation methods may vary considerably depending on circumstance. RAM's approach has been to concentrate on quality and develop methodologies that ensure that all recipients in an area actually receive nets and that this can be reported accurately.

The other major change to the original PNG programme of 2004 to 2009 carried out by the NDOH is that nets are allocated to families on a needs basis rather than simply the number of people in the family. Data analysis of National Capital District (NCD) data has shown that this gives a ratio of nets needed to be about 47 for every 100 people. In the previous LLINs distribution of Round Three in 2006 to 2010, nets were allocated at a rate of one net to every 2.5 people. With the programme only receiving 80% of needs, and most provinces distributing for example two nets to families of three, in practically every province, nets ran out before the end of the distribution. The RAM programme makes all attempts to assure that this does not happen by collecting all population information first and then allocating the nets based on needs as well as availability of nets to ensure that all families receive nets throughout any given province. The only scenario where survey and net distribution may be simultaneous is in very remote locations where it is not practical to return a second time. This is particularly the case in remote villages which can only be reached by boat and it is costly and impractical to return to the villages for a second time.

In terms of coordination, RAM officers are allocated to specific LLGs or health centres where they coordinate the programme together with local health staff. In this capacity, RAM officers act as facilitators in terms of technical guidance to district health teams in each LLG as well as acting as financial officers and assuring quality control of activities taking place.

Schedule

This distribution took place in the eighth year in which RAM has been involved in the distribution of nets with Provincial Health Authorities in PNG. Survey and distributions were carried out as per the table below. Markham is easily reached by road, but for Tiwae Siassi all nets had to be loaded onto a big barge with RAM staff, net and fuel dropped off at three different locations in Lablab, Wasu and Sialum. In Markham district, chartering a plane for Imane was also needed as this area is very difficult to reach by trekking.

TABLE TWO
General Timetable Of Activities In Morobe

District	Survey		Distribution	
	Start	Finish	Start	Finish
Markham	19.09.17	08.10.17	02.10.17	25.10.17
Tewae Siassi	18.09.17	28.09.17	21.09.17	06.10.17

Methodology

Prior to planning and all implementation, a master list of villages of Morobe was drawn up using data from the 2000 Census and the last RAM survey of 2014. Villages in the list are organised by LLG and Ward. In this master list, the estimated population for 2017 for each village is recorded in two ways, first estimated from the 2000 Census figures and the estimated annual growth rate for Morobe and by taking the population surveyed in 2014 and applying the annual growth rate to each village.

In all areas, Health Centres form the hub from which distribution takes place to the respective villages in each health centre’s catchment area. Therefore, with the planning data at hand, the project manager of RAM works together with the Provincial Health Office to allocate every village to its nearest health centre (government or Church Based) and outlines how each village is reached from each health centre. From this it is possible to create a budget, estimate how many nets are needed to be sent to each health centre and work out any other logistic considerations such as use of airplanes or boats to deliver nets to some areas.

Once all logistics have been calculated and nets delivered to the province or district, a RAM team will travel to the province. Once in the province, RAM officers are allocated to work with each health centre which becomes the centre of operations for that area.

With the arrival of RAM officers, each health facility identifies staff members or non-health volunteers to be involved with the programme and these became the District Health Team (DHT) if health staff or Team Leaders (if not health staff) responsible for the survey and distribution of nets. Each DHT and Team Leaders work only in the area in which the health facility is based.

Before any activities take place, RAM officers are expected to work with health staff and other team leaders to make detailed plans (micro-planning) of their activities for training, survey, verification and distribution of nets. This involves making maps of the area, deciding how many teams are needed, and then making detailed work plans for each of the team members. This process also involves verifying that no villages have been left out of the census list and that the whole area is covered.

Also prior to field activities in any given LLG or health centre, a social awareness campaign was carried out in all villages informing villagers of the upcoming survey and distribution. This was also used as an opportunity for RAM officers to become familiar with each area. During this process, key malaria messages were also discussed with villagers such as the need to use LLINs every night.

During the social awareness campaign, a one-day training meeting is normally held at each health facility for all DHT members in that area who together carry out the micro-planning exercise. These training and micro-planning sessions as well as all other activities associated with the programme are coordinated by RAM project officers together with health counterparts at provincial and district level. RAM officers also have the responsibility to ensure the LLINs operation kept in line with the original budget.

Survey

The survey was carried out in the following way.

- 1) When arriving at a village and before starting the census process, a meeting was held with village elders explaining the process.
- 2) If village elders have an up to date list of all village occupants, the team would use this list to compile a census.
- 3) Where a village is small, e.g. less than 30 families, team members may carry out the census by themselves.
- 4) Where villages were large, village volunteers were identified with the assistance of the village chiefs, elders, health staff and councillors. One volunteer was chosen for each group of about 50 families with volunteers chosen by natural divisions in the village e.g. clans where one volunteer would make a list of only one clan. These volunteers were trained to carry out the survey by actually surveying houses with the team leaders supervising and assessing the recording. Once the team leader was confident that the volunteers knew the survey methodology, they were left to continue with the household survey with survey teams returning within an agreed period to verify the work of the survey volunteers, collect survey books and also to pay the survey volunteer if the work has been carried out correctly. The training of volunteers may occur in groups or individually depending on access to the village and its proximity to other villages.
- 5) For each household surveyed, all family members who normally reside at the household for a minimum of nine months were recorded by Name, Age, Sex and Relationship to head of household. All names and other information was recorded in the survey book with one survey form being used for each household.

- 6) After surveying a household, a white copy of the census form was given to the head of household or most senior person present in the household.
- 7) Where a whole household was absent, information was taken from the neighbours and the white survey form left with them.
- 8) In all cases, after the census/list was finished, all the information about the households and number of household members is entered into a summary sheet. This list is then hung in a public place where all villages can verify that the right number of family members for each household has been recorded and that all families have been included in the survey. After the list has been in a public place for 24 hours, then the volunteer requests for the RAM officer and or DHT to visit the village.
- 9) RAM officers and DHTs must visit three households randomly from each survey book (6%) and verify that the survey has been carried out correctly. Only when this has been done, then the volunteer can be paid.
- 10) If a village was surveyed by more than one volunteer, then volunteers are asked to work together so that lists can be hung together and the village volunteers can be verified at the same time. This process also ensures that households do not appear on more than one list. After this process, both the volunteers and the village elders sign a form to verify that this was done.
- 11) All village volunteers received a standard payment of 20 kina a day. Experience has shown that volunteers can usually only survey about 30 families a day, so for the most part, they would receive up to two days allowance to complete a survey book.
- 12) All volunteers are also given a small training manual. Contained in this training manual are key health education messages about malaria which volunteers are expected to discuss with households. This perhaps is the only project in PNG that is able to reach down to potentially every household in the country.



Fig.4 Carrying out survey in Lablab (left) and Village List hanging up in Lablab in public place (Right)

To aid with the survey, the master plan with names of all census units in all the wards in the district had been printed out and given to all the DHTs and team leaders. This document also provides the projected population per census unit as well as other information which might be useful to the area concerned.

After collecting survey data from each village, the information is immediately compared with the data on the master sheet. Where the surveyed population is very different from the projected population, the project staff make enquiries into the reasons for these discrepancies.

Following the survey, all data was entered into a computer where possible or entered into a master sheet of the area concerned. For each village, nets were allocated to each family on a needs basis and this is also entered into the computer or master sheet. This process ensured that all villages received nets and that there would be no shortfalls.

The needs basis in PNG is based on the assumption that children under the age of six sleep with their parents, after which boys and girls are grouped separately from their parents. Nets are also allocated based on the number of children in the house their ages, and whether there are other dependents living in the households such as grandparents. A full description of the allocation system can be obtained from RAM officers but suffice to say a family of four could receive between one to four nets depending on the sex and age of family members.

Nets are allocated to each LLG based on assumed populations of each LLG and it was important prior to the distribution to ensure that when allocations had been carried out to families and villages that there were enough nets available to cover each and every family.

Distribution

There was no official launch for the LLINs distribution. However, prior to distribution there was a social awareness phase where the project teams informed communities about the arrival of the distribution teams, especially those accessible by road.

The LLINs were then distributed to teams depending on the needs of each village. The LLINs were then distributed by village or wards depending on whether villages were close together. In this latter case, a central location was identified in the ward and distribution of nets was carried out. In terms of distribution sites, villages were organised in different ways to make the flow of nets easy and effective. However, the actual organisation depended on each team and the structure of the various groups receiving nets.

All net packaging was opened at distribution with a district code printed on each net e.g. MRB17 for Morobe 2017. This code is added to identify nets to assist in future monitoring exercises as well as discouraging householders from selling the nets on the open market.

Some examples of the process used to control the crowd includes;

- Arranging the people according to the serial numbers in the survey books e.g. 72001 - 72050 and then calling the names and the serial numbers.
- Call the names of the owners of the households, collect the white copy and give the nets.
- Wait for everyone to come to the distribution site, collect all the white copies and sort the copies with the pink copies. Call the names on the white copies and give the nets.

Some of the following control methods were used.

- Everyone who presented with a white copy was given LLINs at the distribution site with LLINs only given to the owner of the house or a member of the house whose name is written on the back of the survey form.
- Those people who lost the white receipts were left to the end of each distribution, with nets only being issued if the name of the person collecting the nets was on the back of the pink copies.
- For those families who were absent at the time of distribution, their names were written in a form – MOSQUITO NETS HELD IN TRUST BY VILLAGE CHIEFS FORM and the nets allocated to missing families were given to chiefs or any person entrusted by the community with the forms for these families to collect their LLINs later.
- Householders are now being asked to make a thumb print as proof of delivery of nets to a household. The Global Fund had formally asked that householders should sign for delivery of nets. This was considered problematic as many householders are illiterate and even where householders can write, this process takes a long time in what is often a very chaotic and charged environment where speed is of the essence.

It should also be noted, that due to the very remote locations found in some LLGs of the province, surveys and distributions took place at more or less the same time in some places. This is particularly true for mountainous villages or small islands which might take several hours or days to reach. In these instances, estimations based on the 2000 Census data and local knowledge to pre-allocate nets to these areas. Teams were then dispatched to these areas with nets. On arrival in these remote places, surveys took place and were immediately followed by a distribution based on the survey results.

Other details

In the case of Morobe Province, all LLINs were delivered to Lae by ship from Vietnam (via Singapore) in four containers where they were custom cleared. Two containers were unloaded in Lae and transported to Tiwae Siassi in an ocean-going barge to Siassi, Wasu and Sialum. The other two containers were transported to Mudzing Health Centre in Markham where they were unloaded. Other remaining nets were sent in loose bales by truck to Markham. From Mudzing, Siassi, Wasu and Sialum, the nets were sent to their respective health centres and then onwards to villages.

Unlike previous years, it was also found that the airfield in Imane was open, and there for it was possible to send one officer by plane to this location with nets. If this had not been done, it would have taken two to three days of hard trekking to reach this area.

Results

The programme surveyed a total of 147,532 people in the two districts to which were distributed 71,141 LLINs. This resulted in distribution of 48.4 nets for every 100 people in the province. Table Three shows the distribution by district while Table Four shows the distribution by LLG. However, it should be noted that about 5 villages in Siassi Rural were not surveyed due to Tribal Fights which might increase the population by another 1,200 people.

TABLE THREE
Nets Distributed At District Level In Morobe

District	Census Population 2000	Population Of Targeted Areas In 2014	Population Surveyed 2017	House Holds Surveyed 2017	Nets Issued 2017	Growth Rate Against 2013 Survey	Growth Rate Against 2000 Survey	Nets Distributed Per 100 People
Markham	49,369	77,881	85,847	17,084	41,441	3.30	3.31	48.3
Tewae Siassi	43,327	58,159	61,685	11,065	29,973	1.98	2.10	48.6
Totals	92,696	136,040	147,532	28,149	71,414	2.74	2.77	48.4

Table Three shows an overall growth rate from 2000 of 2.77 and 2.74 since 2013. This is a remarkably similar growth rate which suggests that data from all surveys in 2000, 2013 and 2017 were reasonably accurate. However, the growth rates in Tiwae Siassi suggest some urban drift as most of this district is very remote with little development. This is also reflected in Siassi which has a very low growth rate but surprisingly Wasu appears to be growing though this could be through movement of people from Kabwum District from which there is a road link to Wasu.

Referring to Table Five, it can be seen that a further 138 LLINs were donated to health centres as nets were surplus to requirement and in most cases could not be easily returned to a central location, particularly from health centres which could only be reached by aeroplane or boat. These nets would be used by pregnant mothers and for hospital beds where needed. The distribution of these nets can be seen in Table Four.

TABLE FOUR
Nets Distributed At LLG Level In Morobe

LLG	District	Population Of Targeted Areas In 2014	Population Surveyed 2017	House Holds Surveyed 2017	Nets Issued 2017	Growth Rate Against 2013 Survey	Nets Distributed Per 100 People
Onga Waffa Rural	Markham	12,027	13,144	2,614	6,278	3.00	47.8
Umi Atzera Rural	Markham	47,602	53,153	10,570	25,528	3.75	48.0
Wantoat Leron Rural	Markham	18,252	19,550	3,900	9,635	2.32	49.3
Sialum Rural	Tewae Siassi	23,783	24,913	4,652	12,106	1.56	48.6
Siassi Rural	Tewae Siassi	18,645	18,886	3,223	9,267	0.43	49.1
Wasu Rural	Tewae Siassi	15,731	17,886	3,190	8,600	4.37	48.1
Totals		136,040	147,532	28,149	71,414	2.74	48.4

TABLE FIVE
Nets Donated To Health Centres

District	LLG	HC	Donated
Markham	Umi Atzera Rural	Mutzing HC	18
Tewae Siassi	Sialum Rural	Sialum HC	36
Tewae Siassi	Sialum Rural	Siwea HC	51
Tewae Siassi	Siassi Rural	Lablab HC	33
Final			138

Referring to Table Six, it can be seen that the overall operational cost of the programme was 263,904.78 Kina (Approximately US\$84,278) resulting in a cost of about 3.70 Kina or US\$1.18 per net delivered which was about 13% over the anticipated overall budget. There were overspends in car hire and fuel due to operations being delayed in some places due to very bad weather combined with bad roads which made some areas periodically inaccessible.

TABLE SIX
Cost Of Programme In Morobe

Budget Line	Budget	Actual	Variances	% Variances
Human Resources	K118,000.00	K98,066.00	K19,934.00	83.1
Fuel Cost	K20,710.00	K27,485.24	-K6,775.24	-32.7
Car Hire Cost	K57,600.00	K96,550.00	-K38,950.00	-67.6
Boat Hire Cost	K22,500.00	K20,280.11	K2,219.89	90.1
Aircraft Hire Cost	K0.00	K7,000.00	-K7,000.00	
Stationeries/Supplies	K3,000.00	K3,450.68	-K450.68	-15.0
5% Contingency	K12,080.50	K11,072.75	K1,007.75	91.7
Total	K233,890.50	K263,904.78	-K30,014.28	-12.8

The project also looked at radio or cell telephone coverage in the different parts of Morobe. Referring to Table Seven, the data suggests that in Morobe, there is reasonable coverage of both cell networks but radio coverage is much better with the exception of some remote places. However, despite this, it would appear that only about 35% of houses have a radio which would include a cell phone as most modern cell phones have a radio within them.

TABLE SEVEN
Cell and Radio Coverage In Morobe

District	House Holds Surveyed	Villages	Digicel	Bmobile	Houses with Radios	Radio Network
Markham	17,084	293	255	164	1,345	256
Tewae Siassi	11,065	162	121	0	3,196	150
Total	28,149	455	376	164	4,541	406



Fig.5 – Distributions in Lablab (left) and Semo (right)

Conclusions

Overall it can be said that the project was a success both in terms of results and joint coordination of the project by RAM field staff members together with provincial and district health staff and Lutheran and Nazarene Church Health Services who have a presence in the province. Through this collaboration, the data suggests that all villages and practically all families in those villages received nets except those mentioned above who were having a tribal fight at the time of distribution.

The major achievement of the programme was also demonstrating that the new verification process introduced by RAM was practical and was generally accepted by both health staff, communities and volunteers as the survey system is now more transparent. One result of this is that RAM officers generally received far less complaints at the time of distribution than they have done in the past.

As with other provinces in the country where RAM has operated in over the last seven years, the methodologies used appeared practical and were openly welcomed by both villagers and implementers, particularly the practice of hanging up the list of names in the middle of the village following a survey: this allowed communities to feel that they were part of a transparent process. This is not to say that perhaps some extra people managed to slip into the books, but in general, it was felt that the system was fair and included practically everyone concerned. The use of the master lists also ensured that all villages were reached and accounted for.

The review of the data prior to the distribution was also important. This ensured that all villages and families received the correct numbers of nets. The Census Lists also from 2000 are also very important to ensure that survey teams reach all villages: without the complete list of villages, it would be very difficult to make a detailed report.

The greatest complaint still received by communities was the number of nets they received. Even though the team explain the logic of how the allocation of nets is calculated, some families were expecting one net per person, others expected it to be based on a fixed allocation based on the number of people in the family, and yet others thought they would be given nets based on the number of nets they stated they already had. This highlights that a better system of explaining the allocation system needs to be developed. In general, unlike some previous districts covered by RAM, DHTs of Morobe assisted in the allocation of the nets which meant they were in a better position to explain the distribution system on the ground. Nevertheless, despite all the difficulties involved, it would appear that the vast majority of community members accepted the outcome and there were no real problems encountered.



Fig.10 – Distributions in Markham

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ACKNOWLEDGEMENT LIST – MOROBE PROVINCE 2017

NAME	OCCUPATION	INSTITUTE
Daniel Daum	Community Health Worker	Wasu Health Centre
Ganinga Hosea	Community Health Worker	Wasu Health Centre
Mrs. Veronica Waffie	District Health Manager	Markham District
Timothy Moses	Aidpost Orderlist	Umi/Atzera LLG
Pascal Neldin	Aidpost Orderlist	Onga/Waffa LLG
Frank Semion	Community Health Worker	Mutzing Health Centre
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One previous page is a list of people specifically mentioned by RAM officers but there are a large number of other health staff and team leaders too many to mention who assisted with their time and help throughout the survey and distribution period.

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Appendix One – History Of LLIN Distribution In PNG

The use of Insecticide Treated Nets (ITNs) started in PNG in 1985. The PNG Institute of Medical Research (IMR) conducted one of the first trials demonstrating the health impact of treating mosquito nets with insecticide. The study, done near Madang, showed a reduction of *P.falciparum* incidence and prevalence in children below five years of age sleeping under permethrin-treated nets. The protective effect of insecticide-treated nets (ITNs) was also confirmed in many other trials around the world. As a consequence of such findings, the national malaria control program in PNG started emphasizing the use of ITNs in 1989. However, no regular or large-scale distribution of ITNs was carried out at this time.

In the following years, coverage with mosquito nets and other control interventions remained patchy and low in many parts of PNG. It was during this period that Rotarians Against Malaria (RAM) was created from the Port Moresby Rotary Club in 1997. Using a donation of 150,000 treated nets given to them from the National Department of Health (originally from AusAid), RAM successfully ran a revolving fund of nets in which nets were sold at a price which allowed the proceeds to buy more nets. This they did successfully for many years distributing about 45,000 treated nets a year from 2000 to 2004.

Prior to 2004, most treated nets had to be re-treated every six months or a year which requires a lot of work and organisation. In early 2004 everything changed with the introduction of Long Lasting Insecticidal Nets (LLINs) which would last for 20 heavy duty washes and effectively no longer required to be treated repeated. This change in nets also coincided with the introduction of the Global Fund into PNG known as the Global Fund Round 3.

From 2005 to 2009 the malaria programme in PNG received and delivered about 2.3 million nets throughout the country at a rate of one net for every 2.5 people. The delivery of nets to village level was under the provincial health authorities and reached most parts of the country with Rotarians Against Malaria (RAM) being responsible in delivering the containers of nets to the provinces from Port Moresby and Lae where the nets arrived from overseas.

While the programme was very successful in some areas it was not so successful in others. Problems included slow release of funds from central to provincial level, some provinces not following technical guidelines given resulting in some areas not been covered, and technical and financial reporting leaving a lot to be desired in many of the provinces. When further funds became available in what is known as the Global Fund Round Eight, it was decided that Rotarians Against Malaria (RAM) would take over the coordination of the LLIN programme.

This change has resulted in RAM being responsible for the overall coordination of the LLIN distribution of LLINs in the country particularly in the areas of quantification, procurement, reporting and delivery to provincial and district level. However, the actual delivery of nets to village level is a collaboration between RAM, provincial health authorities and district health and health centre staff.

Fig.1 shows the distribution of nets to districts and provinces from 2006 to 2009 while Fig.2 shows the distribution of nets from 2010 to 2014 and Fig.3 shows the distribution from 2015 to 2017 which includes under five distributions in 2016 and 2017. Under Five distributions had been carried out in areas above 1600m and in Port Moresby and Lae City due to lack of funds. This situation changed when support from Against Malaria Foundation was received.

Up until June 2017, a total of 8,223, 853 had been distributed under the coordination of RAM. Therefore, with the nets distributed from 2006 to 2009, this means that about 10.5 million nets have been delivered to household level in PNG since 2006. This is more than one net per every person in PNG. RAM has also distributed about another 1.2 million nets to health centres for distribution to pregnant women and for prisons and boarding schools.

It should also be noted that alongside developments treated mosquito nets, the first cases of chloroquine-resistant malaria were reported in 1976 (20). This progressed rapidly to widespread resistance of *P.falciparum*, and to a slightly lesser extent *P.vivax*, to chloroquine, amodiaquine and sulphadoxine-pyrimethamine (SP). In studies conducted between 2003 and 2005, even combination regimens of these drugs faced up to 29% resistance of *P. falciparum*². This situation together with Global Fund Round 8 also saw the introduction of artemeter lumfantrine branded as Malawan, IPT (Intermittent Preventative Treatment) for antenatal women.

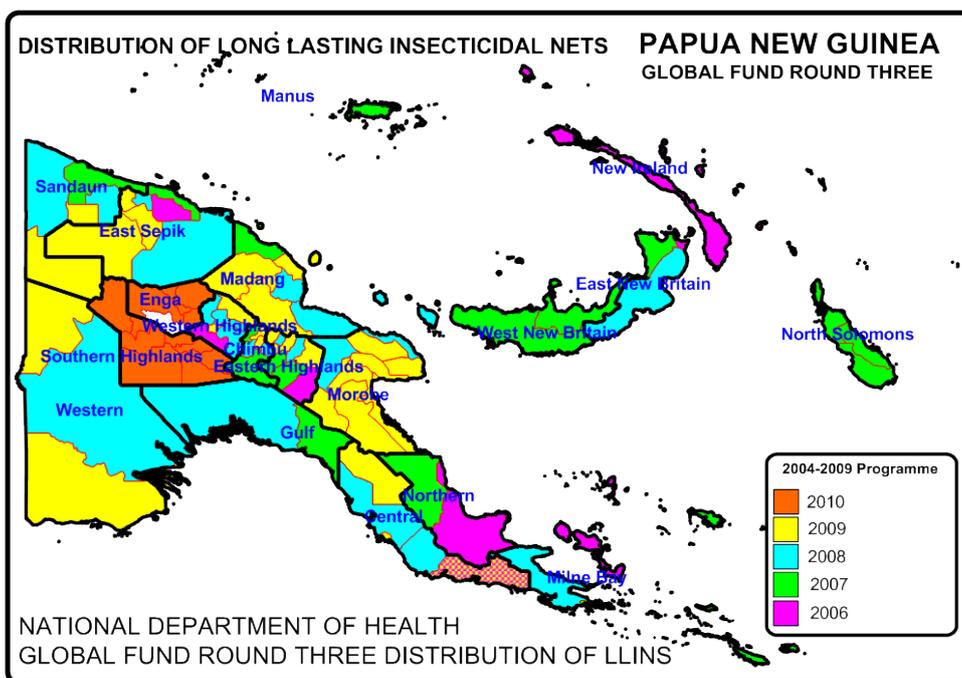


Fig. 1 Distribution Of Nets Under National Department Of Health From 2006 To 2010

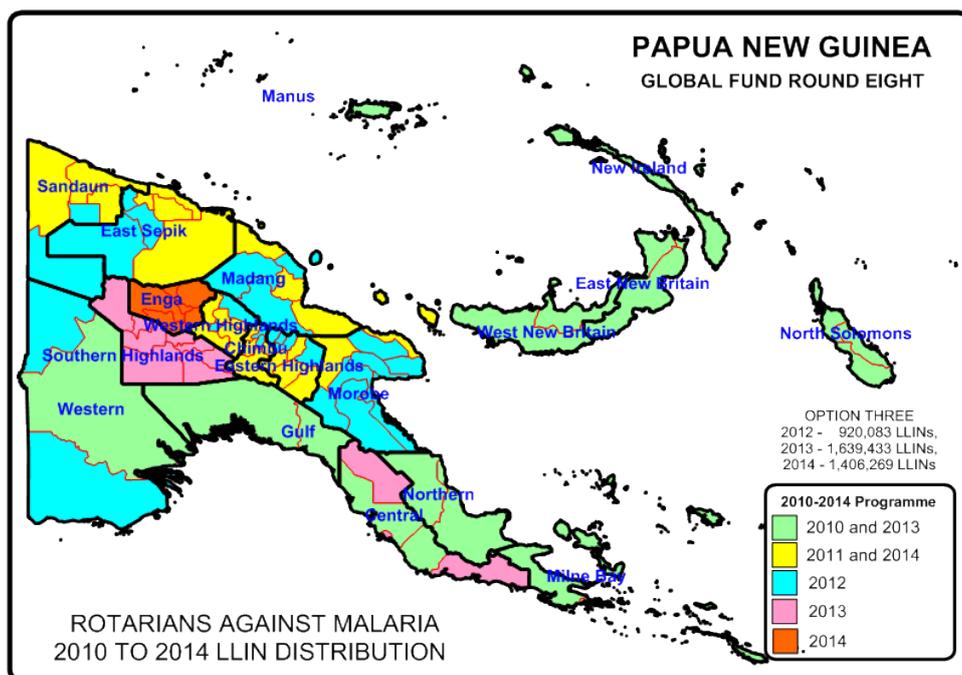


Fig.2 Distribution of LLIN Programme 2010 to 2014

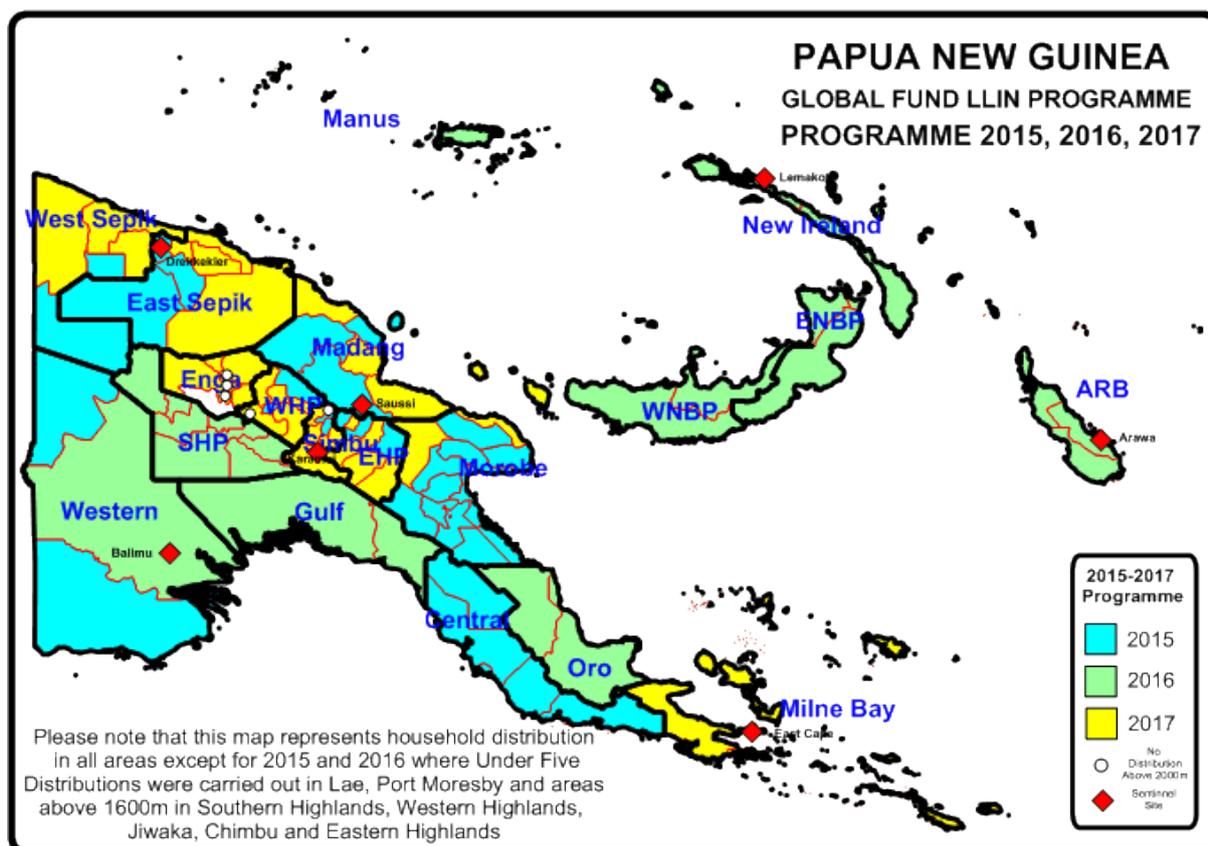


Fig.3 LLIN Distribution Programme 2015 to 2017

TABLE ONE - LLINs Delivered In PNG Under Coordination Of RAM From 2010

Period	Dates	Districts	Provinces	Nets Delivered
Phase One (2010-2011)	Nov 09 - Oct 11	50 Districts	18 Provinces	1,890,448
Year 3 (2012)	Nov 11 - Sep 12	27 Districts	10 Provinces	832,671
Year 4 (2013)	Oct 12 - Sep 13	28 Districts	12 Provinces	1,210,391
Year 5 (2014)	Oct 13 - Sep 14	23 Districts	11 Provinces	1,374,791
Year 5 (2014) No Cost Extension	Oct 14 - Dec 14	Okapa, Lufa, Madang, Angoram, Maprik, Yangoru Saussi, Wewak, Aitape Lumi, Nuku and Vanimo Green	EHP, Madang, East Sepik and Sandaun	454,806
Year 6 (2015)		29 Districts	11 Provinces	932,822
Year 7 (2016)		27 Districts	13 Provinces	805,597
Year 8 (2017)	Jan - Mar 2017	Kokopo, Rabaul, Gazelle, Kimbe, Alotau, Samarai Nurua, Esa'ala, Kiriwina Goodenough	East New Britain, West New Britain, Milne Bay	335,330
	Apr - Jun 2017	Kompam, Wabag, Wapenamanda, Lagaip Porgera, Tambul Nebliya, Mul Bayer, Dei, Anglimp South Waghi and North Waghi	Enga, Western Highlands and Jiwaka	396,997
	Jul - Sep 2017	Chuave, Kerowagi, Karumui, Goroka, Okapa, Lufa, Henganofi and Obura Wonenara	Chimbu and Eastern Highlands	298,983
New Funding Model				2,769,729
Round Eight				5,763,107
Overall Total Phase One and Phase Two And NFM				8,532,836

Appendix Two – Malaria In Morobe Compared With Other Provinces

- Fig.1 shows the decrease of malaria from 2007 to 2015 in all provinces, Fig. 2 shows the actual malaria incidence in Morobe compared with other provinces and Fig.3 shows annual malaria trends from 2012 to 2016. In Morobe, it can be seen from Fig.1 that malaria decreased from 2007 to 2015 by 65% which is a similar reduction to other northern coastal areas of PNG. This is also reflected in Fig.2 which shows that the incidence of malaria in Morobe is 101 per 1000 people which is similar to its coastal neighbours. Fig. 3 shows that the trend of incidence of malaria in Morobe since 2012 as compared with other provinces while Fig.4 shows the malaria incidence reported since 2000 against LLIN distributions which generally show decreases in malaria each time LLINs have been distributed but not always as noted in 2007. The problem with interpreting the impact of LLIN distribution is that the endemicity of malaria in Morobe is quite diverse and the effects of net distribution may not be felt on a provincial level to the same extent, particularly when distribution is not carried out in the province all at one time.

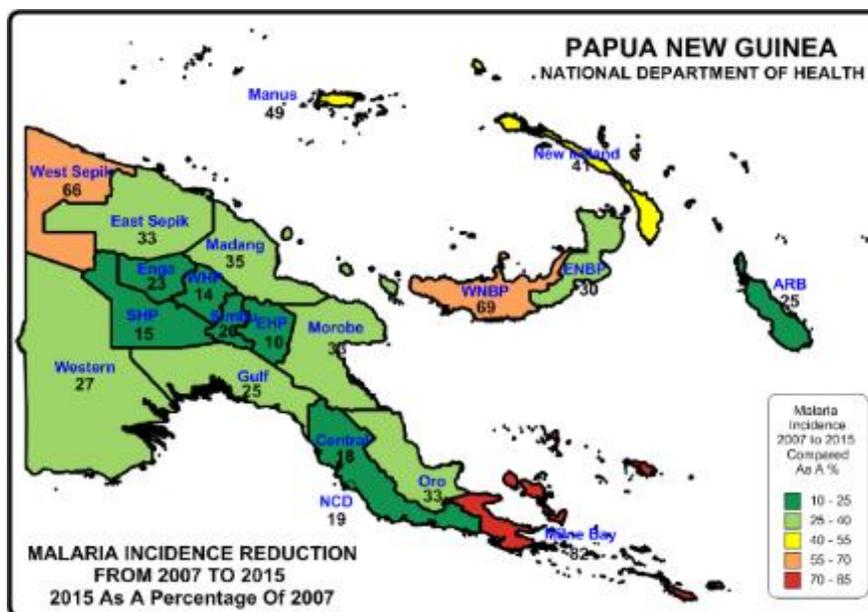


Fig.1 – Relative Reduction Of Malaria In Provinces Of PNG

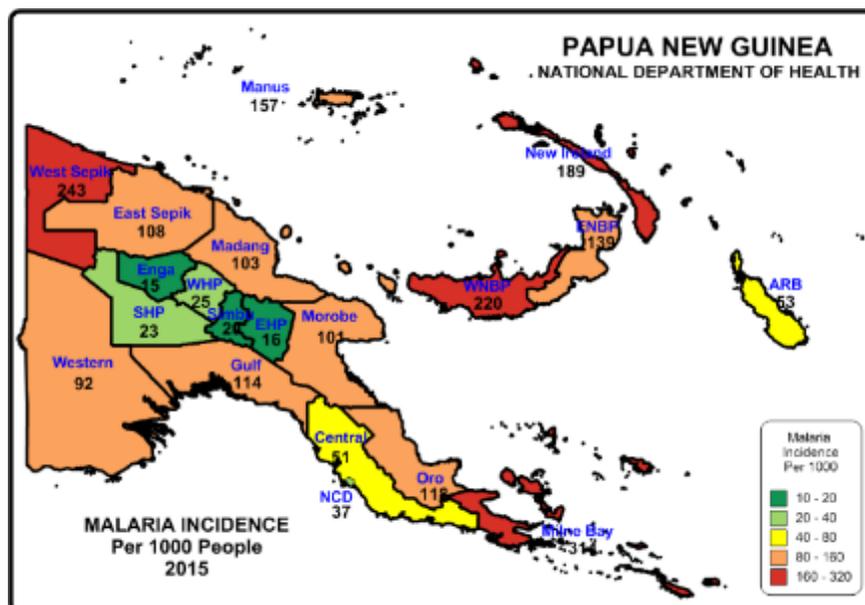


Fig.2 – Reported Malaria Incidence In 2015

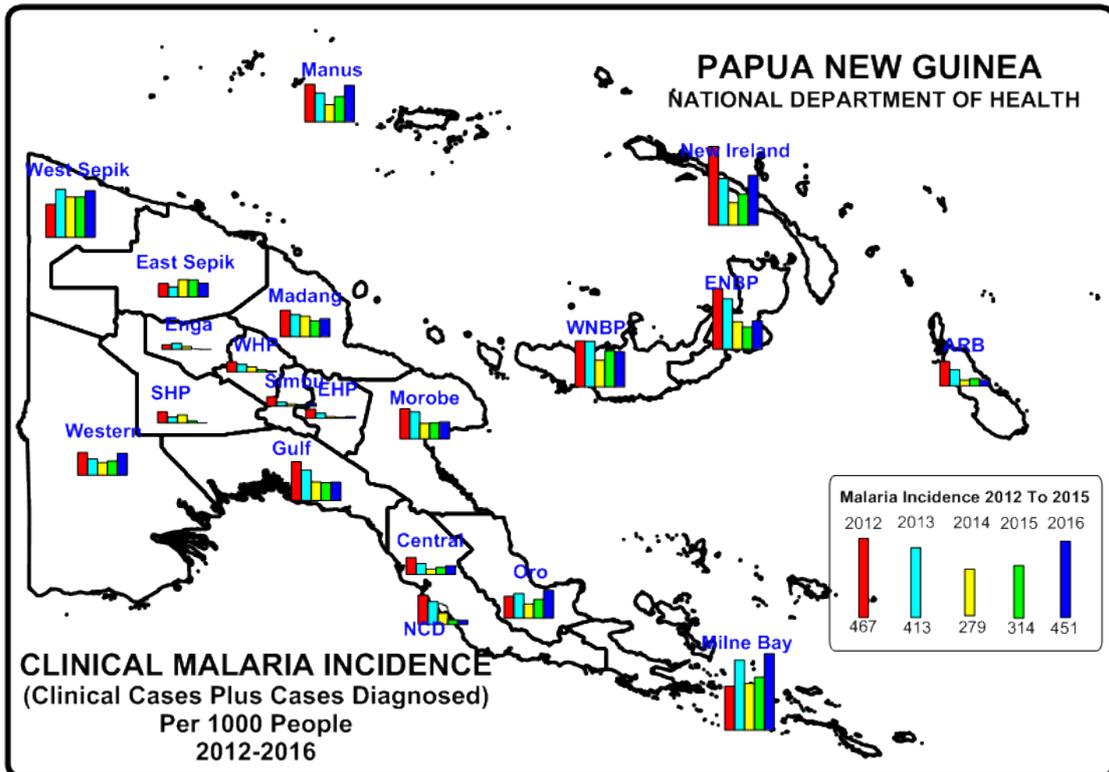


Fig. 3 - Reported Malaria Incidence In PNG From 2012 To 2016

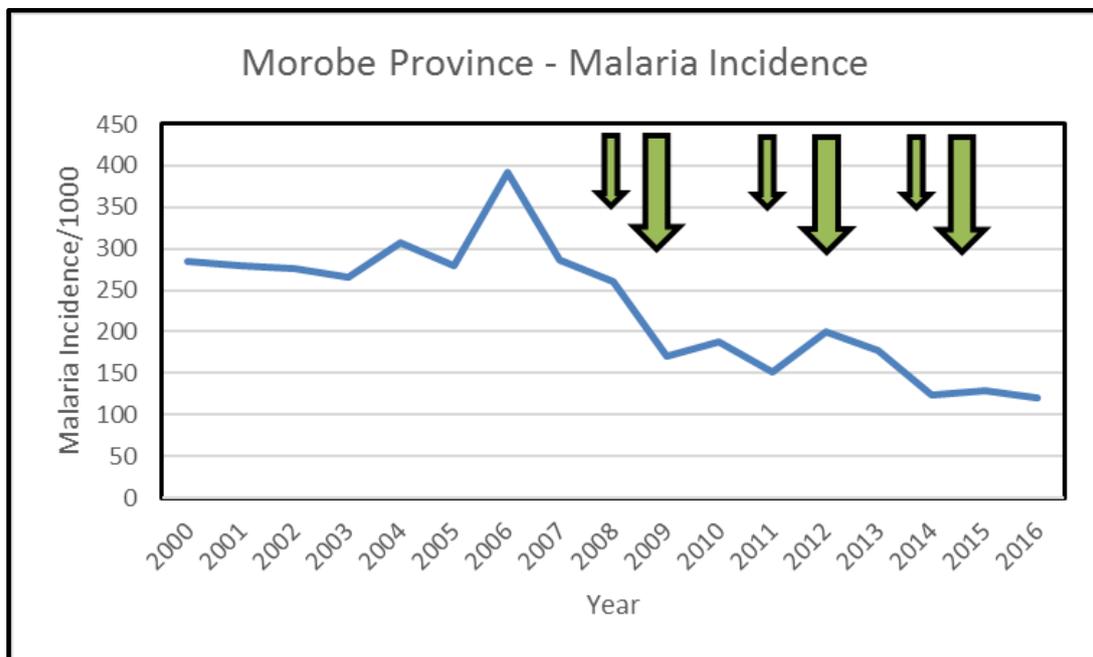


Fig. 4 – Malaria Incidence Versus Distribution Of Nets

(Green Arrows represent years of Household Distribution – Small Arrows show distributions in Markham and Tiwae Siassi - Large Arrows show distributions of other seven districts at a time. In 2015, Lae City had an under five campaign only)

Appendix Three - Malaria By Altitude

From Fig. 1 and data bases of village populations, it can also be calculated that about 70% of the population of Morobe live below 1200m altitude where malaria can be considered highly endemic and stable. A further 18% in the zone between 1200-1600m which is considered malaria epidemic in nature with a further 10% living in the zone 1600-2000 metres where it is generally considered only *P. vivax* lives. The remaining 2% live in areas above 2000m where malaria transmission is not considered to exist. Referring to the map below, it can be seen that the majority of the people living in Tiwae Siassi and Markham live below 1200 metres where malaria is stable and endemic with a few villages at higher altitude which boarder onto Kabwum District.

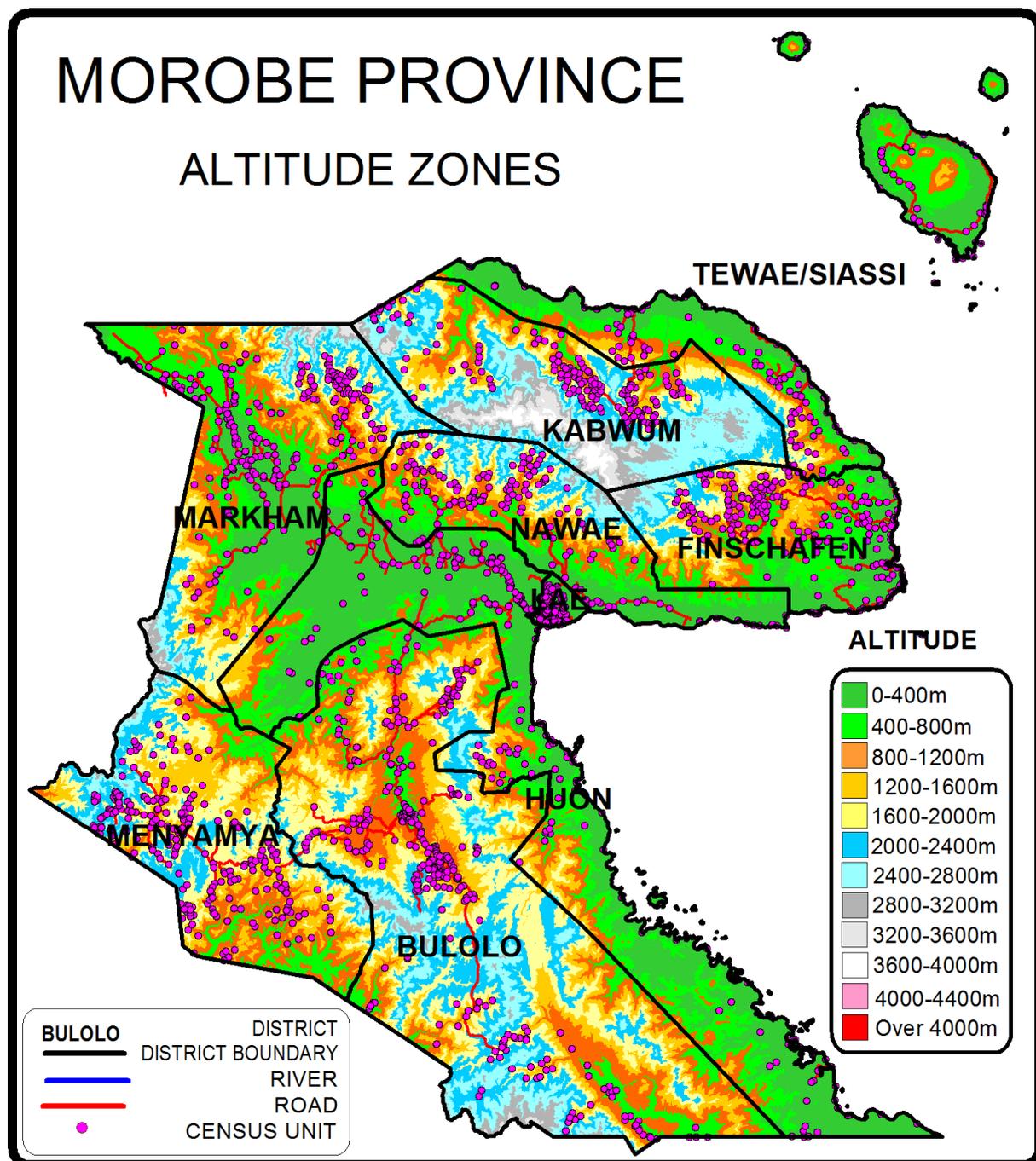


Fig.1 - Altitude Zones Of Western Highlands And Morobe Province

Appendix Four – Other Photographs



Unloading the ferry boat In Lablab



Unloading a container in Lae (left) and trekkers preparing to leave in Etep (right)



Crossing the Markham River by tractor

OTHER PICTURES



Dinghies (Left) and distribution (right) in Semo

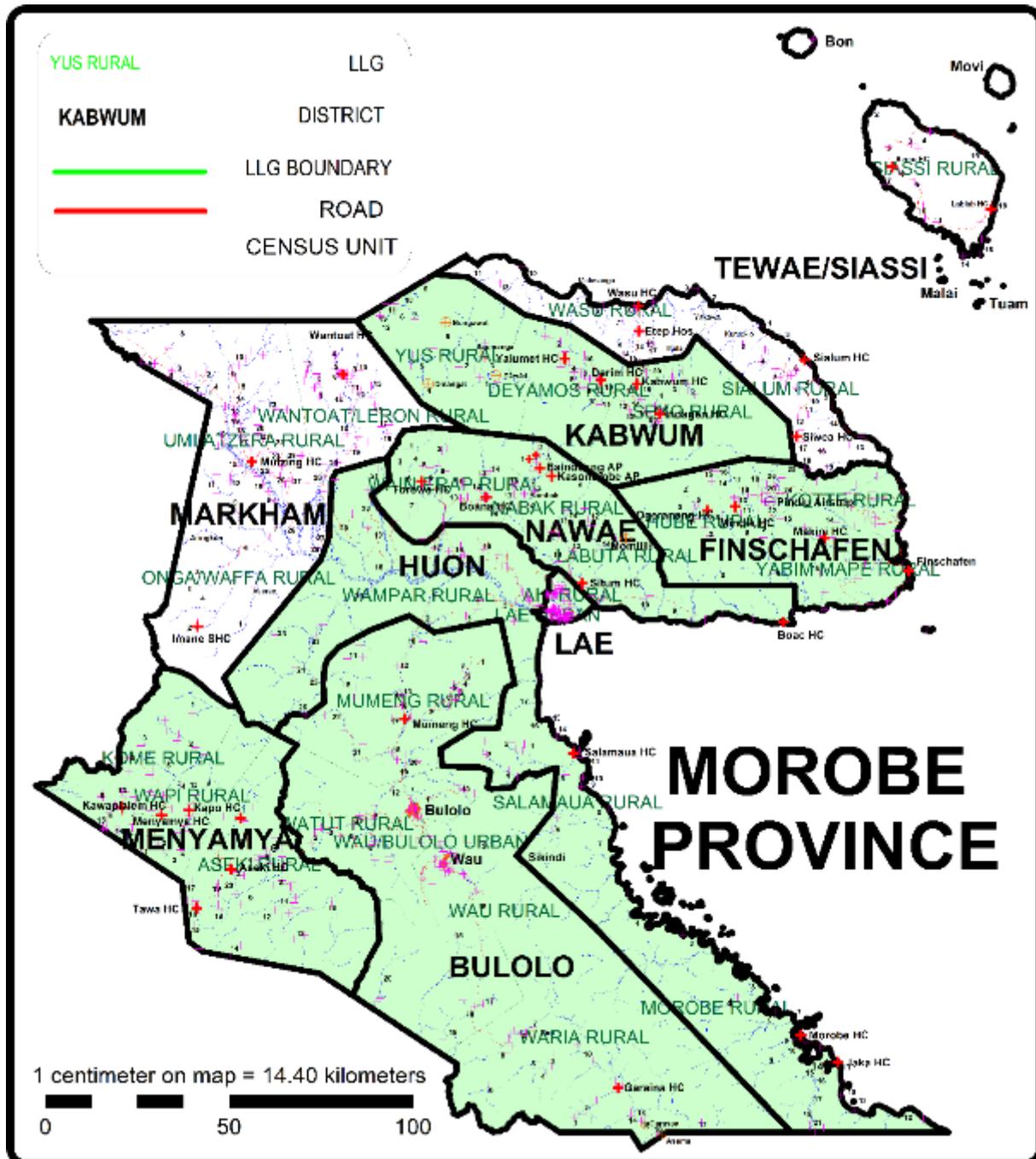


Satisfied Customers (left) and distribution (right) in Semo



Broken down on the side of the road (left) and loading trucks (right) in Markham

Appendix Four - Map Of Morobe Showing Census Points Of 2000 Census



ANNEX ONE

MOROBE PROVINCE
MARKHAM DISTRICT POPULATION 2017
LLIN DISTRIBUTION SUMMARY SHEET

LLG	WARD	VILLAGE	Estimated 2017 Data Based On 2000 Census	Estimated 2017 Data Based On 2014 Data	Health Centre	Population Surveyed	House Holds Surveyed	Nets Issued	Date Of Distribution	Villages	Digicel	Bmobile	Citifon	Houses With Radios	Radio Networks	Comments
MARKHAM			84,608	84,608		85,847	17,084	41,441		293	255	164	0	1,345	256	
ONGA \ WAFFA RURAL			14,279	13,066		13,144	2,614	6,278		42	32	32	0	308	32	
1	TAPAKAINANTU		1,431	1,851		1,519	275	676		4	0	0	0	21		
		Wesalam	655	712	Imane HC	590	114	269	07.10.17	1	0	0	0	0		Airlift Needed/Trek
		Asarao	141	442	Imane HC	244	39	115	07.10.17	1	0	0	0	8		Airlift Needed/Trek
		Tauangor	70	225	Imane HC	139	24	60	09.10.17	1	0	0	0	8		Also can call Wamun Village
		Tapakainantu	566	473	Imane HC	546	98	232	09.10.17	1	0	0	0	5		Most people migrate to Nadzab
2	IMANE		1,167	796		1,203	223	560		4	0	0	0	25		
		Imane	488	309	Imane HC	278	50	129	07.10.17	1	0	0	0	0		Airlift Needed/Trek
		Orent	142	148	Imane HC	180	24	81	07.10.17	1	0	0	0	0		Airlift Needed/Trek
		Camp 14		NEW	Imane HC	363	86	174	06.10.17	1	0	0	0	0		New Village
		Imane service cntr	536	340	Imane HC	382	63	176	06.10.17	1	0	0	0	25		Airstrip
3	KUSING		1,373	1,084		1,228	222	601		5	5	5	0	22		
		Saump	84	59	Mutzing HC	86	21	43	16.10.17	1	1	1	0	7	AM	Road/Trek -3 hrs Trek
		Maratungint	276	257	Mutzing HC	305	49	152	14.10.17	1	1	1	0	5	FM/AM	Road/Trek -4 hrs Trek
		kusing	528	237	Mutzing HC	513	37	105	14.10.17	1	1	1	0	7	FM/AM	Road
		Yasuru	423	503	Mutzing HC	246	100	258	14.10.17	1	1	1	0	3	FM/AM	Road
		Yasuru com.sch	62	28	Mutzing HC	78	15	43	14.10.17	1	1	1	0	0	FM/AM	Road
4	SIAGA		835	740		722	127	344		2	2	2	0	0		
		Siaga Faivo	396	339	Mutzing HC	328	58	156	25.10.17	1	1	1	0	0	FM/AM	Road
		Siaga Warungau	439	401	Mutzing HC	394	69	188	25.10.17	1	1	1	0	0	FM/AM	Road
5	TUMBUNA		787	859		697	130	332		2	0	0	0	29		
		Kapakaus	153	229	Mutzing HC	308	62	147	21.10.17	1	0	0	0	20		One Day Trek
		Tumbuna	634	630	Mutzing HC	389	68	185	21.10.17	1	0	0	0	9		Road/Trek
6	NGARAWAIN		1,145	1,123		934	209	454		5	5	5	0	22		
		Damirfagan	96	114	Mutzing HC	100	23	48	14.10.17	1	1	1	0	0	FM/AM	Road/Trek
		Aringkun	132	102	Mutzing HC	83	21	41	14.10.17	1	1	1	0	0	FM/AM	Road/Trek
		Ngarowain	614	559	Mutzing HC	449	92	217	14.10.17	1	1	1	0	12	FM/AM	Road/Trek
		Yanuf	213	184	Mutzing HC	139	36	70	14.10.17	1	1	1	0	6	FM/AM	Road/Trek
		Ngarowain C/sch	91	164	Mutzing HC	163	37	78	14.10.17	1	1	1	0	4	FM/AM	Road/Trek
7	GURUF		771	647		660	158	323		1	1	1	0	17		
		Guruf	771	647	Mutzing HC	660	158	323	14.10.17	1	1	1	0	17	FM/AM	Road/Trek
8	ITSINGANTS		1,167	974		968	194	469		2	2	2	0	30		
		Itsingants	682	607	Mutzing HC	607	118	296	14.10.17	1	1	1	0	18	FM/AM	Road
		Yatsing	485	367	Mutzing HC	361	76	173	14.10.17	1	1	1	0	12	FM/AM	Road
9	ANTIR		757	872		789	168	378		3	3	3	0	64		
		Antir	435	452	Mutzing HC	358	74	171	14.10.17	1	1	1	0	26	FM/AM	Road/Trek
		Bampa	101	171	Mutzing HC	185	46	89	14.10.17	1	1	1	0	19	FM/AM	Road/Trek
		Ziats	221	250	Mutzing HC	246	48	118	14.10.17	1	1	1	0	19	FM/AM	Road/Trek
10	INTOAP		965	826		823	209	398		3	3	3	0	16		
		Amput	103	90	Mutzing HC	121	31	59	16.10.17	1	1	1	0	2	FM/AM	Road
		Intoap	380	304	Mutzing HC	308	79	149	16.10.17	1	1	1	0	7	FM/AM	Road
		Puguap	482	431	Mutzing HC	394	99	190	14.10.17	1	1	1	0	7	FM/AM	Road
11	WAMPUL		903	739		996	190	476		3	3	3	0	1		
		Mirir	146	128	Mutzing HC	162	28	78	22.10.17	1	1	1	0	0	FM/AM	Road/Trek
		Wampul	401	301	Mutzing HC	430	83	205	22.10.17	1	1	1	0	1	FM/AM	Road/Trek
		Omisuan	356	310	Mutzing HC	404	79	193	22.10.17	1	1	1	0	0	FM/AM	Road/Trek
12	SINGAS		1,275	963		1,108	216	538		3	3	3	0	46		
		Awan/Singas	372	275	Mutzing HC	370	77	178	17.10.17	1	1	1	0	12	FM/AM	Road/Trek
		Upum/Asais	338	275	Mutzing HC	315	59	153	17.10.17	1	1	1	0	0	FM/AM	Road/Trek
		Gangasai/Ngafil	566	413	Mutzing HC	423	80	207	17.10.17	1	1	1	0	34	FM/AM	Road/Trek
13	ONGA		1,704	1,590		1,497	293	729		5	5	5	0	15		
		Ngaroboin	300	302	Mutzing HC	293	57	142	16.10.17	1	1	1	0	3	FM/AM	Road/Trek
		Onga	912	709	Mutzing HC	708	135	347	14.10.17	1	1	1	0	9	FM/AM	Road/Trek
		Ziginbuaruf	257	264	Mutzing HC	284	55	137	17.10.17	1	1	1	0	0	FM/AM	Road/Trek
		Ngarugurias	211	160	Mutzing HC	162	36	77	16.10.17	1	1	1	0	3	FM/AM	Road/Trek
		Onga com sch	24	155	Mutzing HC	50	10	26	19.10.17	1	1	1	0	0	FM/AM	Road/Trek
UMI \ ATZERA RURAL			47,366	51,714		53,153	10,570	25,528		146	134	132	0	939	132	
1	RAGIAMPUN		2,519	2,740		2,888	463	1,389		8	8	8	0	94		
		Antigurin	797	657	Mutzing HC	1,103	145	528	06.10.17	1	1	1	0	30	FM/AM	Road/Trek
		Ragiampun	519	501	Mutzing HC	319	62	153	06.10.17	1	1	1	0	13	FM/AM	Road/Trek
		Bisidi/Atap	444	613	Mutzing HC	394	44	189	06.10.17	1	1	1	0	0	FM/AM	Road/Trek
		Lus	274	183	Mutzing HC	449	88	215	06.10.17	1	1	1	0	15	FM/AM	Road/Trek
		Chakrak	298	280	Mutzing HC	323	62	154	06.10.17	1	1	1	0	18	FM/AM	Road/Trek
		Watung	130	217	Mutzing HC	117	19	61	06.10.17	1	1	1	0	0	FM/AM	Road/Trek
		Umi bridge constn	10	181	Mutzing HC	112	20	54	06.10.17	1	1	1	0	11	FM/AM	Road/Trek
		Umi Atzera/Lg Stn	46	108	Mutzing HC	71	23	35	06.10.17	1	1	1	0	7	FM/AM	Road/Trek
2	WARITZIAN		1,433	1,260		1,301	266	622		1	1	1	0	1		
		Waritzian	1,433	1,260	Mutzing HC	1,301	266	622	06.10.17	1	1	1	0	1	FM/AM	Road
3	WATARIAS		2,046	4,805		5,134	937	2,452		7	6	6	0	70		
		Banabin	165	162	Mutzing HC	392	85	188	03.10.17	1	1	1	0	41	FM/AM	Road
		Ragitaria	715	668	Mutzing HC	679	153	332	03.10.17	1	1	1	0	0	FM/AM	Road
		Watarais	812	1,076	Mutzing HC	1,215	249	569	03.10.17	1	1	1	0	23	FM/AM	Road
		Gusap downs stn	355	77	Mutzing HC	684	100	327	03.10.17	1	1	1	0	6	FM/AM	Road
		Division 1		1,130	Mutzing HC	1,008	100	483	03.10.17	1	1	1	0	0	FM/AM	Road
		Division 2		520	Mutzing HC					1						Included under Wrd-8-Rumpa
		Division 3		1,172	Mutzing HC	1,156	250	553	15.10.17	1	1	1	0	0	FM/AM	Road
4	ATZUNAS		2,691	2,324		2,357	493	1,129		4	4	4	0	170		
		Atzunas	1,239	1,102	Mutzing HC	1,015	205	486	04.10.17	1	1	1	0	4	FM/AM	Road

LLG	WARD	VILLAGE	Estimated 2017 Data Based On 2000 Census	Estimated 2017 Data Based On 2014 Data	Health Centre	Population Surveyed	House Holds Surveyed	Nets Issued	Date Of Distribution	Villages	Digicel	Bmobile	Citifon	Houses With Radios	Radio Networks	Comments
		Mitsimat	122	167	Mutzing HC	128	40	61	04.10.17	1	1	1	0	0	FM/AM	Road
		Tumoa	1,237	1,055	Mutzing HC	994	198	476	04.10.17	1	1	1	0	136	FM/AM	Road
		Ngaru farm	93	0	Mutzing HC	220	50	106	04.10.17	1	1	1	0	30	FM/AM	Road
5	MARAWASA		1,974	2,034		2,328	411	1,117		4	4	4	0	72		
		Papuaguzun	375	485	Mutzing HC	533	100	255	05.10.17	1	1	1	0	11	FM/AM	Road
		Marasasa	435	426	Mutzing HC	481	100	231	05.10.17	1	1	1	0	27	FM/AM	Road
		Marawasa	740	661	Mutzing HC	591	111	284	05.10.17	1	1	1	0	17	FM/AM	Road
		Marazabuang	423	463	Mutzing HC	723	100	347	05.10.17	1	1	1	0	17	FM/AM	Road
6	WANKUN		2,153	2,527		2,488	498	1,209		6	6	6	0	42		
		Satup	72	154	Mutzing HC	180	39	89	05.10.17	1	1	1	0	1	FM/AM	Road
		Warazam	110	367	Mutzing HC	198	43	94	05.10.17	1	1	1	0	0	FM/AM	Road
		Wankun 1	925	969	Mutzing HC	899	174	436	05.10.17	1	1	1	0	13	FM/AM	Road
		Wankun 2	816	554	Mutzing HC	733	135	362	05.10.17	1	1	1	0	0	FM/AM	Road
		Wankum com sch	55	230	Mutzing HC	65	12	31	05.10.17	1	1	1	0	0	FM/AM	Road
		Singsing creek	175	252	Mutzing HC	413	95	197	05.10.17	1	1	1	0	28	FM/AM	Road
7	RAGINAM		1,765	1,638		1,523	328	739		4	4	4	0	0		
		Raginam	804	664	Mutzing HC	582	130	285	02.10.17	1	1	1	0	0	FM/AM	Road
		Uramguzun	101	109	Mutzing HC	202	34	96	02.10.17	1	1	1	0	0	FM/AM	Road
		Ragizumang	788	687	Mutzing HC	595	122	287	02.10.17	1	1	1	0	0	FM/AM	Road
		Yung creek camp	72	179	Mutzing HC	144	42	71	02.10.17	1	1	1	0	0	FM/AM	Road
8	RUMPA		1,227	2,538		1,540	295	735		7	5	3	0	5		
		Gusap	202	304	Mutzing HC	346	60	165	15.10.17	1	1	1	0	1	FM/AM	Road/Trek
		Hingia	338	291	Mutzing HC	306	50	146	15.10.17	1	1	0	0	2	FM/AM	Road/Trek/2 Day Walk
		Rumpa	404	0	Mutzing HC	483	100	231	15.10.17	1	1	1	0	2		Road/Trek
		Yankowan	283	262	Mutzing HC	198	35	92	15.10.17	1	1	0	0	0	FM/AM	Road/Trek/2 Day Walk
		Intang		411	Mutzing HC					1						Included under Rumpa
		Gunaya		140	Mutzing HC					1						Included under Rumpa
		Division 1		1,130	Mutzing HC	207	50	101	17.10.17	1	1	1	0	0	FM/AM	Road
9	YANUF		1,464	1,517		1,718	348	822		6	6	6	0	2		
		Bantul	132	139	Mutzing HC	154	32	73	09.10.17	1	1	1	0	0	FM/AM	Road/Trek
		kapala	362	185	Mutzing HC	451	100	216	09.10.17	1	1	1	0	0	FM/AM	Road/Trek
		Marabuai	187	298	Mutzing HC	246	50	118	09.10.17	1	1	1	0	0	FM/AM	Road/Trek
		Ngarugayan	555	0	Mutzing HC	613	113	293	09.10.17	1	1	1	0	2	FM/AM	Road/Trek
		Yanuf	182	286	Mutzing HC	175	36	84	09.10.17	1	1	1	0	0	FM/AM	Road/Trek
		Yanuf camp	46	609	Mutzing HC	79	17	38	09.10.17	1	1	1	0	0	FM/AM	Road/Trek
10	NUMBUGU		1,522	1,331		1,653	305	786		7	6	6	0	5		
		Benahi	154	0	Mutzing HC	274	50	131	15.10.17	1	1	1	0	0	FM/AM	Road/2 Hr Trek
		long stone	206	0	Mutzing HC	110	15	51	15.10.17	1	1	1	0	0	FM/AM	Road/2 Hr Trek
		Yawa	228	471	Mutzing HC	328	61	154	15.10.17	1	1	1	0	3	FM/AM	Road/2 Hr Trek
		Iankwam	173	298	Mutzing HC	258	46	125	15.10.17	1	1	1	0	2	FM/AM	Road/2 Hr Trek
		Numbugu	586	471	Mutzing HC	506	100	243	15.10.17	1	1	1	0	0	FM/AM	Road/2 Hr Trek
		Samura	146	90	Mutzing HC					1						Included under Benahi
		Numbugu com sch	29	0	Mutzing HC	177	33	82	15.10.17	1	1	1	0	0	FM/AM	Road/2 Hr Trek
11	NGARUTZANIANG		1,114	1,246		1,429	253	688		4	4	4	0	139		
		Ngarutzaniang	728	848	Mutzing HC	714	133	339	09.10.17	1	1	1	0	97	FM/AM	Road/Trek
		Warus	334	398	Mutzing HC	426	72	207	09.10.17	1	1	1	0	3	FM/AM	Road/Trek
		Umi voc/center	27	0	Mutzing HC	109	17	53	09.10.17	1	1	1	0	15	FM/AM	Road/Trek
		Yafat (works) camp	24	0	Mutzing HC	180	31	89	09.10.17	1	1	1	0	24	FM/AM	Road/Trek
12	SAMARAN		1,318	1,216		1,128	203	543		7	6	6	0	3		
		Amari	99	116	Mutzing HC	122	23	61	15.10.17	1	1	1	0	0	FM/AM	Road/Trek
		Dantap	476	362	Mutzing HC	333	51	159	15.10.17	1	1	1	0	3	FM/AM	Road/Trek
		Nawantmaran	115	79	Mutzing HC	177	39	86	15.10.17	1	1	1	0	0	FM/AM	Road/Trek
		Samaran	444	357	Mutzing HC	276	49	131	15.10.17	1	1	1	0	0	FM/AM	Road/Trek
		Yampua	159	168	Mutzing HC	152	26	74	15.10.17	1	1	1	0	0	FM/AM	Road/Trek
		Samaran com sch	27	41	Mutzing HC	68	15	32	15.10.17	1	1	1	0	0	FM/AM	Road/Trek
		Tari		91	Mutzing HC					1						Included under Amari
13	ZUMARA		1,176	1,041		1,093	227	536		4	4	4	0	0		
		Marafau	344	340	Mutzing HC	344	80	170	09.10.17	1	1	1	0	0	FM/AM	Road
		Mitzing	290	146	Mutzing HC	185	43	97	09.10.17	1	1	1	0	0	FM/AM	Road
		Zumara	483	458	Mutzing HC	498	93	238	09.10.17	1	1	1	0	0	FM/AM	Road
		Zumara com.ch	58	97	Mutzing HC	66	11	31	09.10.17	1	1	1	0	0	FM/AM	Road
14	MAYAMZARIANG		1,225	1,111		1,215	259	583		2	2	2	0	19		
		Gainarun	543	549	Mutzing HC	589	130	283	09.10.17	1	1	1	0	8	FM/AM	Road
		Mayamzariang	682	563	Mutzing HC	626	129	300	09.10.17	1	1	1	0	11	FM/AM	Road
15	TOFMORA		1,428	1,062		1,127	272	540		2	2	2	0	2		
		Gutsuap	819	633	Mutzing HC	705	185	338	09.10.17	1	1	1	0	2	FM/AM	Road
		Tofmora	608	429	Mutzing HC	422	87	202	09.10.17	1	1	1	0	0	FM/AM	Road
16	ARIFIRAN		1,709	1,703		1,696	434	816		6	6	6	0	132		
		Anga/Afing	766	620	Mutzing HC	642	169	308	09.10.17	1	1	1	0	106	FM/AM	Road
		Sauf	267	215	Mutzing HC	250	73	128	09.10.17	1	1	1	0	1	FM/AM	Road
		Arifiran	427	349	Mutzing HC	419	98	197	09.10.17	1	1	1	0	22	FM/AM	Road
		Bumpup	122	174	Mutzing HC	187	47	89	09.10.17	1	1	1	0	0		Road
		Muri	91	114	Mutzing HC	128	33	61	09.10.17	1	1	1	0	2	FM/AM	Road
		Arifiran com sch	36	231	Mutzing HC	70	14	33	09.10.17	1	1	1	0	1	FM/AM	Road
17	DABU		2,440	2,853		3,354	665	1,608		11	10	10	0	18		
		Ancha	110	445	Mutzing HC	490	100	235	09.10.17	1	1	1	0	0	FM/AM	Road
		Dabu (Hauswin)	248	359	Mutzing HC	369	83	176	09.10.17	1	1	1	0	0	FM/AM	Road
		Mufins	195	162	Mutzing HC	154	36	76	09.10.17	1	1	1	0	0	FM/AM	Road
		Tipusinamp	50	0	Mutzing HC	112	28	53	09.10.17	1	1	1	0	0	FM/AM	Road
		Sagup	178	200	Mutzing HC	211	41	101	09.10.17	1	1	1	0	0	FM/AM	Road
		Sampubangin	435	602	Mutzing HC	711	132	342	09.10.17	1	1	1	0	4	FM/AM	Road
		Mutzing	288	269	Mutzing HC	210	33	100	09.10.17	1	1	1	0	14	FM/AM	Road
		kaiwat	70	115	Mutzing HC	83	18	39	09.10.17	1	1	1	0	0	FM/AM	Road
		Umpuaf	199	162	Mutzing HC	358	62	171	09.10.17	1	1	1	0	0	FM/AM	Road
		Barikuumam	63	0	Mutzing HC	139	32	67	09.10.17	1	1	1	0	0	FM/AM	Road
		Wampua	603	539	Mutzing HC	517	100	248	09.10.17	1	1	1	0	0	FM/AM	

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18	ZUMIM		1,397	1,427		1,578	276	762		4	4	4	0	6		
		Basis	82	72	Mutzing HC	352	42	168	09.10.17	1	1	1	0	0	FM/AM	Road
		Zumin 1	672	632	Mutzing HC	358	69	173	09.10.17	1	1	1	0	0	FM/AM	Road
		Zumin 2	643	651	Mutzing HC	778	153	376	09.10.17	1	1	1	0	6	FM/AM	Road
		Zumin Primary School		73	Mutzing HC	90	12	45	09.10.17	1	1	1	0	0	FM/AM	Road
19	ANTRIRAGEN		1,191	1,610		1,491	310	726		5	3	3	0	10		
		Antriragen	708	435	Mutzing HC	875	165	428	09.10.17	1	1	1	0	0	FM/AM	Road
		Biring	149	209	Mutzing HC	207	46	99	09.10.17	1	1	1	0	5	FM/AM	Road
		Unas (Babing)	334	366	Mutzing HC	409	99	199	09.10.17	1	1	1	0	5	FM/AM	Road
		Tapua		403	Mutzing HC					1						Included under Antiragen
		Dangunt		198	Mutzing HC					1						Included under Antiragen
20	GANTIAP		811	715		663	133	313		2	2	2	0	2		
		Gantisap	197	161	Mutzing HC	126	27	57	07.10.17	1	1	1	0	0	FM/AM	Road
		Ufuafragin	614	554	Mutzing HC	537	106	256	07.10.17	1	1	1	0	2	FM/AM	Road
21	SAURUAN		2,039	2,286		2,359	499	1,131		6	5	5	0	18		
		Sauruan (Kaiapit)	247	0	Mutzing HC	215	38	103	11.10.17	1	1	1	0	1	FM/AM	Road
		Ragidumpiat	504	603	Mutzing HC	383	95	183	11.10.17	1	1	1	0	13	FM/AM	Road
		Sauruan	1,152	1,419	Mutzing HC	1,468	309	704	11.10.17	1	1	1	0	4	FM/AM	Road
		Ampan com sch	48	0	Mutzing HC	48	8	23	11.10.17	1	1	1	0	0	FM/AM	Road
		Yabim girls sch	34	204	Mutzing HC					1						Will cover under school prog.
		Tsula service cntr	55	60	Mutzing HC	245	49	118	11.10.17	1	1	1	0	0	FM/AM	Road
22	MAMARINGAN		934	861		963	158	462		2	2	2	0	7		
		Mamaringan/ufabufab	591	540	Mutzing HC	576	99	277	11.10.17	1	1	1	0	2	FM/AM	Road
		Bampinggyafan	343	322	Mutzing HC	387	59	185	11.10.17	1	1	1	0	5	FM/AM	Road
23	MARANGINTS		1,212	1,097		1,256	278	598		5	5	5	0	3		
		Guntu	202	266	Mutzing HC	322	56	154	11.10.17	1	1	1	0	1	FM/AM	Road
		Mazam	348	305	Mutzing HC	278	66	131	11.10.17	1	1	1	0	1	FM/AM	Road
		Orori	242	146	Mutzing HC	281	58	133	11.10.17	1	1	1	0	1	FM/AM	Road
		Ples Waisan	117	154	Mutzing HC	149	39	73	11.10.17	1	1	1	0	0	FM/AM	Road
		Suwai	303	226	Mutzing HC	226	59	107	11.10.17	1	1	1	0	0	FM/AM	Road
24	MANGIANG		1,162	1,011		946	186	454		2	2	2	0	8		
		Mangiang	781	669	Mutzing HC	678	129	327	11.10.17	1	1	1	0	0	FM/AM	Road
		Mangiang mainlands	380	342	Mutzing HC	268	57	127	11.10.17	1	1	1	0	8	FM/AM	Road
25	BINIMAMP		1,428	1,456		1,353	293	650		4	4	4	0	8		
		Ngaruburamp	185	289	Mutzing HC	409	79	196	12.10.17	1	1	1	0	2	FM/AM	Road
		Isim	60	120	Mutzing HC	61	18	29	12.10.17	1	1	1	0	0	FM/AM	Road
		Ragitamat	324	263	Mutzing HC	218	50	106	12.10.17	1	1	1	0	0	FM/AM	Road
		Binimamp	859	784	Mutzing HC	665	146	319	12.10.17	1	1	1	0	6	FM/AM	Road
26	NASAWASIANG		2,190	2,052		1,958	468	944		5	4	4	0	44		
		Urai	694	680	Mutzing HC	550	165	267	12.10.17	1	1	1	0	11	FM/AM	Road
		Mampim	852	810	Mutzing HC	829	188	402	12.10.17	1	1	1	0	0	FM/AM	Road
		Zimama	24	197	Mutzing HC	258	49	126	12.10.17	1	1	1	0	33	FM/AM	Road
		Itsir	327	365	Mutzing HC	321	66	149	12.10.17	1	1	1	0	0	FM/AM	Road
		Ngintzip	293	0	Mutzing HC					1						Old Name for Mampim
27	SANGAN		1,899	2,341		2,268	460	1,091		9	7	7	0	37		
		Siriwarang	1,087	1,081	Mutzing HC	847	169	409	12.10.17	1	1	1	0	0	FM/AM	Road
		Riara	641	189	Mutzing HC	207	44	99	12.10.17	1	1	1	0	0	FM/AM	Road
		Chuachi		131	Mutzing HC	315	49	154	12.10.17	1	1	1	0	0	FM/AM	Road
		Effess/Marabuman		108	Mutzing HC					1						Included under Guruk
		Guruk/ Chumpiatun		156	Mutzing HC	248	61	118	12.10.17	1	1	1	0	22	FM/AM	Road
		Campyalu		215	Mutzing HC	225	44	108	12.10.17	1	1	1	0	4	FM/AM	Road
		Forestry & Mission Sch.		117	Mutzing HC					1						Included under Riara
		Sangan com sch	27	177	Mutzing HC	231	50	110	12.10.17	1	1	1	0	11	FM/AM	Road
		Ierons plane farm	144	166	Mutzing HC	195	43	93	12.10.17	1	1	1	0	0	FM/AM	Road
28	WAFIBAMPUN		1,263	1,049		1,316	277	636		3	3	3	0	9		
		Leron Bridge	118	0	Mutzing HC	157	25	75	10.10.17	1	1	1	0	1	FM/AM	Road
		Chizingbampun	151	139	Mutzing HC	130	34	63	10.10.17	1	1	1	0	3	FM/AM	Road
		Wafibumpun	994	910	Mutzing HC	1,029	218	498	10.10.17	1	1	1	0	5	FM/AM	Road
29	ZUMANGURUN		1,758	1,772		1,823	380	869		5	5	5	0	8		
		Gampnamuf	180	0	Mutzing HC	155	27	73	12.10.17	1	1	1	0	0	FM/AM	Road
		Yamung Yamung	74	81	Mutzing HC	237	40	113	12.10.17	1	1	1	0	0	FM/AM	Road
		Taiwan	322	480	Mutzing HC	338	75	165	12.10.17	1	1	1	0	2	FM/AM	Road
		Bagaboang (Papi)	317	304	Mutzing HC	134	38	64	12.10.17	1	1	1	0	0	FM/AM	Road
		Zumangurun	865	906	Mutzing HC	959	200	454	12.10.17	1	1	1	0	6	FM/AM	Road
30	MUTZING STATION		879	1,090		1,207	195	578		4	4	4	0	5		
		Mutzing Stn	812	528	Mutzing HC	514	85	248	14.10.17	1	1	1	0	0	FM/AM	Road
		Mutzing Prim.sch	67	75	Mutzing HC	88	11	42	14.10.17	1	1	1	0	0	FM/AM	Road
		Markham H/School		201	Mutzing HC	299	46	142	14.10.17	1	1	1	0	4	FM/AM	Road
		Chikiats/Backstreet		286	Mutzing HC	306	53	146	14.10.17	1	1	1	0	1	FM/AM	Road
		WANTOAT \ LERON RURAL	22,963	19,828		19,550	3,900	9,635		105	89	0	0	98	92	
1	MATAK		879	758		799	148	395		7	0	0	0	0		
		Matak	147	128	Wantoat HC	179	37	89	15.10.17	1	0	0	0	0	NBC	4 Hr Trek
		Savin	55	73	Wantoat HC	97	17	50	15.10.17	1	0	0	0	0	NBC	4 Hr Trek
		Sorik	55	45	Wantoat HC	56	8	25	15.10.17	1	0	0	0	0	NBC	4 Hr Trek
		Bilom	135	96	Wantoat HC	95	17	45	15.10.17	1	0	0	0	0	NBC	4 Hr Trek
		Behawun	271	238	Wantoat HC	201	39	102	15.10.17	1	0	0	0	0	NBC	4 Hr Trek
		Pambaku	139	122	Wantoat HC	113	20	57	15.10.17	1	0	0	0	0	NBC	4 Hr Trek
		Kwaledakane	77	58	Wantoat HC	58	10	27	15.10.17	1	0	0	0	0	NBC	4 Hr Trek
2	MATAYA		1,313	1,158		1,004	224	503		5	5	0	0	0		
		Ikwang	358	306	Wantoat HC	318	63	161	17.10.17	1	1	0	0	0	NBC	2 Hr Trek
		Sakapan	248	187	Wantoat HC	177	45	88	17.10.17	1	1	0	0	0	NBC	2 Hr Trek
		Genang	235	214	Wantoat HC	192	38	94	17.10.17	1	1	0	0	0	NBC	2 Hr Trek
		Keptapa	158	181	Wantoat HC	113	28	58	17.10.17	1	1	0	0	0	NBC	2 Hr Trek
		Mataya	314	269	Wantoat HC	204	50	102	17.10.17	1	1	0	0	0	NBC	2 Hr Trek
3	GUNINGWAN		960	876		718	133	353		6	2	0	0	0		

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		Bakundupi	447	331	Wantoat HC	321	62	156	15.10.17	1	0	0	0	0	NBC	2 Hr Trek
		Tapaya	118	63	Wantoat HC	138	29	68	15.10.17	1	1	0	0	0	NBC	2 Hr Trek
		Yapuruk	213	150	Wantoat HC	155	29	79	15.10.17	1	1	0	0	0	NBC	2 Hr Trek
		Guningwan	57	68	Wantoat HC	104	13	50	15.10.17	1	0	0	0	0	NBC	2 Hr Trek
		Kanaik	125	75	Wantoat HC					1						Included under Guningwan
		Bakudupi School (boarders)		188	Wantoat HC					1						Included under Bakudupi
4	ARAWEK		1,210	1,217		1,210	244	585		4	4	0	0	0		
		Arawek	468	406	Wantoat HC	426	74	201	13.10.17	1	1	0	0	0	NBC	Road/Trek
		Wambaguyak	63	86	Wantoat HC	151	48	79	13.10.17	1	1	0	0	0	NBC	Road/Trek
		Gwaing	226	237	Wantoat HC	238	50	118	13.10.17	1	1	0	0	0	NBC	Road/Trek
		Het Wantoat	452	488	Wantoat HC	395	72	187	13.10.17	1	1	0	0	0	NBC	Road/Trek
5	UMBAKU		1,566	1,328		1,241	259	620		6	5	0	0	40		
		Umbaku	326	248	Wantoat HC	200	42	105	17.10.17	1	1	0	0	0	NBC	Road/Trek
		Kupatdu	288	222	Wantoat HC	244	50	123	17.10.17	1	1	0	0	0	NBC	Road/Trek
		Mumugwak	134	217	Wantoat HC	133	27	65	17.10.17	1	1	0	0	0	NBC	Road/Trek
		Mamabam	351	266	Wantoat HC	327	68	157	17.10.17	1						Road/Trek
		Matap	284	218	Wantoat HC	192	43	96	17.10.17	1	1	0	0	0	NBC	Road/Trek
		Umbyepun	183	156	Wantoat HC	145	29	74	17.10.17	1	1	0	0	40	NBC	Road/Trek
6	YAPARINGAN		1,040	821		708	147	355		4	4	0	0	0		
		kongaim	214	122	Wantoat HC	93	20	48	12.10.17	1	1	0	0	0	NBC	Road/Trek
		Sapbam	260	210	Wantoat HC	228	53	118	12.10.17	1	1	0	0	0	NBC	Road/Trek
		Atawakap	99	100	Wantoat HC	112	24	53	12.10.17	1	1	0	0	0	NBC	Road/Trek
		Yaparingan	466	390	Wantoat HC	275	50	136	12.10.17	1	1	0	0	0	NBC	Road/Trek
7	GWAMBONGWAK		1,554	1,040		1,092	218	533		6	6	0	0	5		
		Puyaknga	173	83	Wantoat HC	150	27	72	11.10.17	1	1	0	0	0	NBC	Trek
		Dorim	165	80	Wantoat HC	82	21	41	11.10.17	1	1	0	0	0	NBC	Trek
		Etaut	254	201	Wantoat HC	238	47	116	11.10.17	1	1	0	0	0	NBC	Trek
		Gawan	231	200	Wantoat HC	231	50	113	11.10.17	1	1	0	0	3	NBC	Trek
		Gwambongwak	458	272	Wantoat HC	227	43	111	11.10.17	1	1	0	0	0	NBC	Trek
		Wantoat Stn	274	204	Wantoat HC	164	30	80	11.10.17	1	1	0	0	2	NBC	Trek
8	SENGAPAN		1,309	1,006		938	219	480		6	6	0	0	12		
		Mupiapun	103	149	Wantoat HC	80	19	42	11.10.17	1	1	0	0	1	NBC	Trek
		Zappakgwen	391	199	Wantoat HC	267	72	145	11.10.17	1	1	0	0	10	NBC	Trek
		Zukgaman	103	89	Wantoat HC	70	16	35	11.10.17	1	1	0	0	1	NBC	Trek
		kotu kompaun	168	125	Wantoat HC	128	23	63	11.10.17	1	1	0	0	0	NBC	Trek
		Sengapan	343	223	Wantoat HC	238	50	115	11.10.17	1	1	0	0	0	NBC	Trek
		Taput	202	222	Wantoat HC	155	39	80	11.10.17	1	1	0	0	0	NBC	Trek
9	KUBUNG		1,042	650		782	169	375		6	6	0	0	0		
		Napna	125	105	Wantoat HC	120	25	59	13.10.17	1	1	0	0	0	NBC	Road/Trek
		Sipot	87	58	Wantoat HC	121	28	48	13.10.17	1	1	0	0	0	NBC	Road/Trek
		Yangakop	153	70	Wantoat HC	45	10	23	13.10.17	1	1	0	0	0	NBC	Road/Trek
		Gwapzit	122	56	Wantoat HC	45	13	25	13.10.17	1	1	0	0	0	NBC	Road/Trek
		kubung	404	274	Wantoat HC	365	78	180	13.10.17	1	1	0	0	0	NBC	Road/Trek
		Piung	151	87	Wantoat HC	86	15	40	13.10.17	1	1	0	0	0	NBC	Road/Trek
10	ULYAM		1,076	697		671	142	337		4	4	0	0	0		
		Poaman	394	263	Wantoat HC	268	50	129	13.10.17	1	1	0	0	0	NBC	Road/Trek
		Kesan	197	129	Wantoat HC	131	27	68	13.10.17	1	1	0	0	0	NBC	Road/Trek
		Sangurak	231	133	Wantoat HC	138	32	69	13.10.17	1	1	0	0	0	NBC	Road/Trek
		Uyam	254	173	Wantoat HC	134	33	71	13.10.17	1	1	0	0	0	NBC	Road/Trek
11	BUMBUM		1,376	900		1,010	210	482		6	6	0	0	0		
		Akomnadopang	230	151	Wantoat HC	160	35	75	12.10.17	1	1	0	0	0	NBC	Road
		Wambung	267	154	Wantoat HC	187	36	89	12.10.17	1	1	0	0	0	NBC	Road
		Yangeke	243	215	Wantoat HC	199	38	93	12.10.17	1	1	0	0	0	NBC	Road
		Bumbum	260	171	Wantoat HC	153	39	76	12.10.17	1	1	0	0	0	NBC	Road
		Kesaut	147	95	Wantoat HC	135	28	63	12.10.17	1	1	0	0	0	NBC	Road
		Yuwandaka	228	114	Wantoat HC	176	34	86	12.10.17	1	1	0	0	0	NBC	Road
12	DAPUNZIT		747	554		525	102	254		5	5	0	0	7		
		Sipdet	137	66	Wantoat HC	125	26	62	12.10.17	1	1	0	0	7	NBC	Road/Trek
		Buabaku	62	71	Wantoat HC	79	18	37	12.10.17	1	1	0	0	0	NBC	Road/Trek
		Zayakwen	122	78	Wantoat HC	78	12	38	12.10.17	1	1	0	0	0	NBC	Road/Trek
		Dapunzit	177	143	Wantoat HC	36	7	17	12.10.17	1	1	0	0	0	NBC	Road/Trek
		Gapmopi	250	196	Wantoat HC	207	39	100	12.10.17	1	1	0	0	0	NBC	Road/Trek
13	EWOK		819	740		790	135	381		5	5	0	0	4		
		kangandaka	187	165	Wantoat HC	200	31	93	13.10.17	1	1	0	0	2	NBC	Road/Trek
		Ewok	218	223	Wantoat HC	221	43	110	13.10.17	1	1	0	0	2	NBC	Road/Trek
		kikiapa	257	199	Wantoat HC	207	34	99	13.10.17	1	1	0	0	0	NBC	Road/Trek
		Yotdamuk	63	76	Wantoat HC	79	13	38	13.10.17	1	1	0	0	0	NBC	Road/Trek
		Nungangwak	94	77	Wantoat HC	83	14	41	13.10.17	1	1	0	0	0	NBC	Road/Trek
14	GINONGA		1,155	1,023		998	197	496		7	7	0	0	0		
		Tamaman	238	166	Wantoat HC	153	23	76	13.10.17	1	1	0	0	0	NBC	Road/Trek
		Puran	170	131	Wantoat HC	120	28	58	13.10.17	1	1	0	0	0	NBC	Road/Trek
		Samsam	192	243	Wantoat HC	254	44	126	13.10.17	1	1	0	0	0	NBC	Road/Trek
		Bungkawe	218	179	Wantoat HC	176	36	88	13.10.17	1	1	0	0	0	NBC	Road/Trek
		Basawena	161	152	Wantoat HC	179	38	90	13.10.17	1	1	0	0	0	NBC	Road/Trek
		Ginonga	81	88	Wantoat HC	56	15	28	13.10.17	1	1	0	0	0	NBC	Road/Trek
		Gwanganang	96	63	Wantoat HC	60	13	30	13.10.17	1	1	0	0	0	NBC	Road/Trek
15	KAMANG		922	718		888	178	448		4	4	0	0	0		
		Warambung	365	257	Wantoat HC	272	60	145	12.10.17	1	1	0	0	0	NBC	Road/4 Hr Trek From Bumbum
		Kamang	473	381	Wantoat HC	372	73	182	12.10.17	1	1	0	0	0	NBC	Road/4 Hr Trek From Bumbum
		kandumin	84	79	Wantoat HC	91	18	43	12.10.17	1	1	0	0	0	NBC	Road/4 Hr Trek From Bumbum
		Bongam		NEW	Wantoat HC	153	27	78	12.10.17	1	1	0	0	0	NBC	New Inclusion
16	GUMIA		730	751		583	112	285		4	3	0	0	0		
		Dakgaman	58	72	Wantoat HC	206	37	101	10.10.17	1	1	0	0	0	NBC	Road/One Day Trek From Wantoat
		Garambon	255	299	Wantoat HC	219	39	104	10.10.17	1	1	0	0	0	NBC	Road/One Day Trek From Wantoat

LLG	WARD	VILLAGE	Estimated 2017 Data Based On 2000 Census	Estimated 2017 Data Based On 2014 Data	Health Centre	Population Surveyed	House Holds Surveyed	Nets Issued	Date Of Distribution	Villages	Digicel	Bmobile	Citifon	Houses With Radios	Radio Networks	Comments
		Gumia	298	221	Wantoat HC	158	36	80	10.10.17	1	1	0	0	0	NBC	Road/One Day Trek From Wantoat
		Kawan	118	160	Wantoat HC					1						Included under Dakgaman
17	DAKU		1,099	1,011		957	208	495		5	5	0	0	0		
		Aret	79	160	Wantoat HC	67	13	36	10.10.17	1	1	0	0	0	NBC	Road/2 Hr Trek
		Tamae	237	173	Wantoat HC	160	37	82	10.10.17	1	1	0	0	0	NBC	Road/2 Hr Trek
		Daku	257	243	Wantoat HC	219	55	114	10.10.17	1	1	0	0	0	NBC	Road/2 Hr Trek
		Sarawak	195	180	Wantoat HC	176	31	88	10.10.17	1	1	0	0	0	NBC	Road/2 Hr Trek
		Zuebak	331	255	Wantoat HC	335	72	175	10.10.17	1	1	0	0	0	NBC	Road/2 Hr Trek
18	SUKURUM		1,501	1,540		1,335	245	644		6	6	0	0	0		
		Rumdinan	322	290	Wantoat HC	298	53	142	17.10.17	1	1	0	0	0	NBC	Road/Trek
		Gabagiap	137	260	Wantoat HC	150	28	75	17.10.17	1	1	0	0	0	NBC	Road/Trek
		Tuguntugun/kupasa	190	168	Wantoat HC	147	31	73	17.10.17	1	1	0	0	0	NBC	Road/Trek
		Taratarak	165	169	Wantoat HC	167	34	83	17.10.17	1	1	0	0	0	NBC	Road/Trek
		Sukurum	547	570	Wantoat HC	508	82	239	17.10.17	1	1	0	0	0	NBC	Road/Trek
		Warom	141	83	Wantoat HC	65	17	32	17.10.17	1	1	0	0	0	NBC	Road/Trek
19	SOM		1,138	1,296		1,338	268	651		5	2	0	0	0		
		Tembon	123	140	Mutzing HC	196	40	97	14.10.17	1	0	0	0	0		Road/Trek
		Papuai	75	238	Mutzing HC	263	55	129	14.10.17	1	1	0	0	0		Road/Trek
		Sirasira	392	400	Mutzing HC	348	66	166	14.10.17	1	0	0	0	0		Road/Trek
		Som	293	243	Mutzing HC	241	50	118	14.10.17	1	1	0	0	0		Road/Trek
		Yim	254	275	Mutzing HC	290	57	141	14.10.17	1	0	0	0	0		Road/Trek
20	NGARIAWANG		1,525	1,745		1,963	342	963		4	4	0	0	30		
		Yuweng	149	160	Mutzing HC	199	42	97	14.10.17	1	1	0	0	7		Road/Trek
		Ngariawang	456	687	Mutzing HC	762	132	372	14.10.17	1	1	0	0	14		Road/Trek
		Wangat	643	636	Mutzing HC	716	118	354	14.10.17	1	1	0	0	9		Road/Trek
		Sasiang farm	278	263	Mutzing HC	286	50	140	14.10.17	1	1	0	0	0		Road/Trek

ANNEX TWO

MOROBE PROVINCE
TEWAE SIASSI DISTRICT POPULATION 2017
LLIN DISTRIBUTION SUMMARY SHEET

LLG	WARD	VILLAGE	Estimated 2017 Data Based On 2000 Census	Estimated 2017 Data Based On 2014 Data	Health Centre	Population Surveyed	House Holds Surveyed	Nets Issued	Date Of Distribution	Villages	Digicel	Emobile	Citifon	Houses With Radios	Radio Networks	Comments	
TEWAE \ SIASSI			63,182	63,182		61,685	11,065	29,973			173	121	0	0	3,196	150	
SIALUM RURAL			27,397	25,837		24,913	4,652	12,106			63	63	0	0	2,451	47	
1	GITUA		1,311	1,391		1,316	178	642		1	1	0	0	26			
		Gitua	1,311	1,391	Sialum HC	1,316	178	642	04.10.17	1	1	0	0	26	/ Radio Mo	Road/Coastal	
2	KUMUKIO		2,119	1,980		1,888	287	921		3	3	0	0	72			
		Ezanko	194	379	Sialum HC	268	49	131	04.10.17	1	1	0	0	2	/ Radio Mo	Road / 1Hr 30 Trekk	
		Kinalaknga	442	303	Sialum HC	363	58	177	04.10.17	1	1	0	0	8	/ Radio Mo	Road / 1Hr 30 Trekk	
		Kumukio	1,483	1,298	Sialum HC	1,257	180	613	04.10.17	1	1	0	0	62	/ Radio Mo	Road / 4Hrs Trekk	
3	SIALUM		1,641	1,712		1,513	292	729		4	4	0	0	149			
		Kwambu	376	422	Sialum HC	391	73	187	30.09.17	1	1	0	0	59	/ Radio Mo	Road	
		Nama	120	120	Sialum HC	161	33	77	30.09.17	1	1	0	0	0	/ Radio Mo	Road	
		Sialum	904	868	Sialum HC	725	145	349	30.09.17	1	1	0	0	54	/ Radio Mo	Road	
		Sialum Gvt/stn	241	303	Sialum HC	236	41	116	29.09.17	1	1	0	0	36	/ Radio Mo	Road	
4	GITUKIA		1,515	1,600		1,636	292	790		5	5	0	0	180			
		Lobaka	130	216	Sialum HC	210	38	101	27.09.17	1	1	0	0	38	/ Radio Mo	Road/Trek 2Hrs	
		Bwambi	264	273	Sialum HC	341	49	164	27.09.17	1	1	0	0	7	/ Radio Mo	Road/Trek 1 hr	
		Gitukia	400	345	Sialum HC	340	69	163	27.09.17	1	1	0	0	42	/ Radio Mo	Road/Trek 1 hr	
		Paukenga	233	265	Sialum HC	270	50	132	27.09.17	1	1	0	0	42	/ Radio Mo	Road/Trek 1 hr	
		Siikea	489	501	Sialum HC	475	86	230	27.09.17	1	1	0	0	51	/ Radio Mo	Road/Trek 2Hrs	
5	KUKUYA		1,279	1,268		1,301	239	625		3	3	0	0	158			
		Kalasa	115	186	Sialum HC	240	37	115	27.09.17	1	1	0	0	35	/ Radio Mo	Road/Trek 1 hr	
		Kukuya	836	771	Sialum HC	721	127	343	27.09.17	1	1	0	0	76	/ Radio Mo	Road/Trek 2hrs	
		Wetna	328	311	Sialum HC	340	75	167	27.09.17	1	1	0	0	47	/ Radio Mo	Road/Trek 1 hr	
6	KANGKEU		1,206	1,294		1,219	216	598		4	4	0	0	147			
		Rikoko	332	338	Sialum HC	273	50	134	27.09.17	1	1	0	0	50	/ Radio Mo	Road/Trek 1 hr	
		Biungen	114	131	Sialum HC	137	33	67	27.09.17	1	1	0	0	27	/ Radio Mo	Road/Trek 1 hr	
		Kangkeu	255	277	Sialum HC	280	46	137	27.09.17	1	1	0	0	37	/ Radio Mo	Road/Trek 1 hr	
		Kip	505	548	Sialum HC	529	87	260	27.09.17	1	1	0	0	33	/ Radio Mo	Road/Trek 1 hr	
7	RUA		726	769		814	164	394		3	3	0	0	146			
		Bakon	187	192	Sialum HC	171	39	83	28.09.17	1	1	0	0	29	/ Radio Mo	Road/Trek 2Hrs	
		Rua	349	355	Sialum HC	426	90	207	28.09.17	1	1	0	0	90	/ Radio Mo	Road/Trek 2Hrs	
		Soweng	191	222	Sialum HC	217	35	104	28.09.17	1	1	0	0	27	/ Radio Mo	Road/Trek 2Hrs	
8	NUNZEN		1,175	1,452		1,348	240	647		3	3	0	0	185			
		Kemburum	201	302	Sialum HC	303	50	145	28.09.17	1	1	0	0	36	/ Radio Mo	Road / 2Hrs	
		Nunzen	579	825	Sialum HC	581	127	280	28.09.17	1	1	0	0	94	/ Radio Mo	Road	
		Tunge	395	326	Sialum HC	464	63	222	28.09.17	1	1	0	0	55	/ Radio Mo	Road / 2Hrs	
9	KANOME		1,331	1,481		1,483	296	719		4	4	0	0	201			
		kanome stn	311	375	Sialum HC	467	100	225	28.09.17	1	1	0	0	55	/ Radio Mo	Road	
		kanome	300	273	Sialum HC	214	50	105	28.09.17	1	1	0	0	16	/ Radio Mo	Road	
		kanzarua	375	360	Sialum HC	390	66	187	28.09.17	1	1	0	0	53	/ Radio Mo	Road	
		Nanda	346	474	Sialum HC	412	80	202	28.09.17	1	1	0	0	77	/ Radio Mo	Road	
10	RIRIWO		1,260	1,164		1,044	199	502		4	4	0	0	1			
		Ga	198	186	Sialum HC	180	33	86	30.09.17	1	1	0	0	0	/ Radio Mo	Road+ 2Hrs Trek From Kanome	
		Ririwo	588	539	Sialum HC	532	100	255	30.09.17	1	1	0	0	1	/ Radio Mo	Road+ 2 Hrs Trek From Kanome	
		Sambe	168	200	Sialum HC	143	28	70	30.09.17	1	1	0	0	0	/ Radio Mo	Road+ 2 Hrs Trek From Kanome	
		Samep	306	239	Sialum HC	189	38	91	30.09.17	1	1	0	0	0	/ Radio Mo	Road+ 2 Hrs Trek From Kanome	
11	KARAKO		1,817	1,511		1,375	250	665		3	3	0	0	77			
		Gerup	532	477	Sialum HC	480	74	233	04.10.17	1	1	0	0	62	/ Radio Mo	2 Hr+ Trek	
		Karako	1,012	877	Sialum HC	724	142	349	04.10.17	1	1	0	0	0	/ Radio Mo	2 Hr+ Trek	
		Maiawa	273	158	Sialum HC	171	34	83	04.10.17	1	1	0	0	15	/ Radio Mo	2 Hr+ Trek	
12	ZANKOA		1,413	1,002		1,026	213	494		3	3	0	0	175			
		Sumy	216	173	Sialum HC	218	50	106	30.09.17	1	1	0	0	25	/ Radio Mo	2 Hr+ Trek	
		Zakupep	573	401	Sialum HC	426	86	204	30.09.17	1	1	0	0	85	/ Radio Mo	2 Hr+ Trek	
		Zankoa	624	428	Sialum HC	382	77	184	30.09.17	1	1	0	0	65	/ Radio Mo	2 Hr+ Trek	
13	WANDOKAI		2,155	2,218		2,215	420	1,075		4	4	0	0	166			
		Butenka	451	413	Sialum HC	414	91	199	29.09.17	1	1	0	0	31	/ Radio Mo	Road	
		Hubegong	280	262	Sialum HC	290	83	147	29.09.17	1	1	0	0	42	/ Radio Mo	Road	
		Kapaua	548	580	Sialum HC	514	90	246	29.09.17	1	1	0	0	54	/ Radio Mo	Road	
		Wandokai	876	964	Sialum HC	997	156	483	29.09.17	1	1	0	0	39	/ Radio Mo	Road	
14	WALINGAI		1,441	1,630		1,567	314	756		3	3	0	0	185			
		Ago	585	718	Sialum HC	655	150	317	29.09.17	1	1	0	0	51	/ Radio Mo	Road	
		Hudewa	416	403	Sialum HC	373	68	181	29.09.17	1	1	0	0	58	/ Radio Mo	Road	
		Walingai	440	508	Sialum HC	539	96	258	29.09.17	1	1	0	0	76	/ Radio Mo	Road	
15	REBAFU		2,157	1,475		1,575	325	781		3	3	0	0	262			
		Orarako	618	454	Siwea HC	483	112	245	04.10.17	1	1	0	0	79		Road+ 2Hr+ Trek From Kanome	
		Rebafu	725	558	Siwea HC	561	113	276	04.10.17	1	1	0	0	107		Road+ 2Hr+ Trek From Kanome	
		Siwea	814	463	Siwea HC	531	100	260	04.10.17	1	1	0	0	76		Road+ 2Hr+ Trek From Kanome	
16	ZONGEFIFI		1,845	1,367		1,437	293	707		4	4	0	0	223			
		Zageheme	656	612	Siwea HC	728	150	359	06.10.17	1	1	0	0	106		Trek 2 Hrs From Worangai	
		Zongefifi	424	374	Siwea HC	359	79	176	06.10.17	1	1	0	0	76		Trek 2 Hrs From Worangai	
		Zorigo	359	341	Siwea HC	297	55	146	06.10.17	1	1	0	0	32		Trek 2 Hrs From Worangai	
		Zageheme c/sch	405	40	Siwea HC	53	9	26	06.10.17	1	1	0	0	9		Trek 2 Hrs From Worangai	
17	ZUNZUMAU		919	773		681	148	336		3	3	0	0	88			
		Zanganu	219	199	Siwea HC	175	35	86	06.10.17	1	1	0	0	17		1 Hr Trek From Siwea	
		Yomonzoko	350	282	Siwea HC	249	54	122	06.10.17	1	1	0	0	32		1 Hr Trek From Siwea	

LLG	WARD	VILLAGE	Estimated 2017 Data Based On 2000 Census	Estimated 2017 Data Based On 2014 Data	Health Centre	Population Surveyed	House Holds Surveyed	Nets Issued	Date Of Distribution	Villages	Digicel	Bmobile	Citifon	Houses With Radios	Radio Networks	Comments
		Zunzumau	350	292	Siwea HC	257	59	128	06.10.17	1	1	0	0	39		1 Hr Trek From Siwea
18	MASA		1,320	1,149		698	163	344		4	4	0	0	5		
		Besaiba	209	221	Siwea HC	122	22	60	04.10.17	1	1	0	0	0		3 Hrs Trek From Siwea
		Hoboc	257	210	Siwea HC	126	33	62	04.10.17	1	1	0	0	0		3 Hrs Trek From Siwea
		Masa	611	520	Siwea HC	314	80	155	04.10.17	1	1	0	0	0		3 Hrs Trek From Siwea
		Turuo	244	199	Siwea HC	136	28	67	04.10.17	1	1	0	0	5		3 Hrs Trek From Siwea
19	KINGFARENAO		767	601		777	123	381		2	2	0	0	5		
		Hompua	528	370	Siwea HC	545	83	267	04.10.17	1	1	0	0	4		4 Hrs From Siwea
		Kingfarenao	239	230	Siwea HC	232	40	114	04.10.17	1	1	0	0	1		4 Hrs From Siwea
				0												
SIASSI RURAL			20,251	20,255		18,886	3,223	9,267		47	4	0	0	54	44	
1	BON		1,221	1,165		1,278	181	628		4	0	0	0	0		
		Awar	382	324	Semo HC	349	45	169	24.09.17	1	0	0	0	0	NBC	Dinghy
		Bon	241	263	Semo HC	277	48	139	24.09.17	1	0	0	0	0	NBC	Dinghy
		Mulau	325	259	Semo HC	349	59	177	24.09.17	1	0	0	0	0	NBC	Dinghy
		Tul	273	319	Semo HC	303	29	143	24.09.17	1	0	0	0	0	NBC	Dinghy
2	MASELE		471	431		519	85	255		1	0	0	0	0		
		Masele	471	431	Semo HC	519	85	255	22.09.17	1	0	0	0	0	NBC	Dinghy
3	AIMALU		1,531	1,498		1,579	269	742		3	0	0	0	8		
		Aiyau	729	596	Semo HC	540	95	254	23.09.17	1	0	0	0	8	NBC	Dinghy/Trek
		Mararamu	802	902	Semo HC	851	135	393	23.09.17	1	0	0	0	0	NBC	Dinghy/Trek
		Gizangmos		NEW	Semo HC	188	39	95	23.09.17	1	0	0	0	0		Dinghy
4	AUPWEL		860	1,045		1,029	178	485		2	0	0	0	8		
		Arot	315	327	Semo HC	335	59	159	23.09.17	1	0	0	0	8	NBC	Dinghy/Trek
		Aupwel	545	718	Semo HC	694	119	326	23.09.17	1	0	0	0	0	NBC	Dinghy/Trek
5	SAMANAI		1,302	982		460	92	213		4	0	0	0	0		
		Gasam	538	355	Semo HC					1						Tribal fights
		Gom	458	398	Semo HC	460	92	213	21.09.17	1	0	0	0	0	NBC	Trek
		Oropot	293	229	Semo HC					1					NBC	Tribal fights
		Samanai com.sch	13	0	Semo HC					1					NBC	Tribal fights
6	SEMO		833	649		0	0	0		2	0	0	0	0		
		Barang	402	299	Semo HC					1					NBC	Tribal fights
		Omom	430	350	Semo HC					1					NBC	Tribal fights
7	PANDAMOT		554	598		566	98	271		1	0	0	0	15		
		Barim	554	598	Semo HC	566	98	271	21.09.17	1	0	0	0	15	NBC	Dinghy/Offload For Semo
8	TAGOP		633	793		657	120	325		2	0	0	0	0		
		Owongai	274	468	Semo HC	274	53	134	26.09.17	1	0	0	0	0	NBC	Books not collected after distribution
		Tarawe	359	325	Semo HC	383	67	191	26.09.17	1	0	0	0	0	NBC	2 Hr Trek
9	OPAE		507	620		588	97	286		2	0	0	0	0		
		Gomlongon	309	316	Semo HC	290	49	147	28.09.17	1	0	0	0	0	NBC	3 Hr Trek
		Opae	198	304	Semo HC	298	48	139	26.09.17	1	0	0	0	0	NBC	3 Hr Trek
10	BUNSil		1,194	957		1,072	187	510		5	0	0	0	0		
		Salaboran	314	250	Semo HC	165	30	78	26.09.17	1	0	0	0	0	NBC	Dinghy
		Andrai	216	222	Semo HC	263	50	119	26.09.17	1	0	0	0	0	NBC	Dinghy
		Bunsil stn	665	486	Semo HC	229	34	107	27.09.17	1	0	0	0	0	NBC	Dinghy
		Andrai Logging camp		NEW	Semo HC	271	45	137	28.09.17	1	0	0	0	0	NBC	Dinghy
		Marasulon		NEW	Semo HC	144	28	69	26.09.17	1	0	0	0	0	NBC	Dinghy
11	ARONAE		507	582		560	104	281		2	0	0	0	0		
		Mangingi	118	173	Lablab HC	163	34	82	29.09.17	1	0	0	0	0	NBC	1 hr by vehicle
		Aronai-Mutu	389	410	Lablab HC	397	70	199	27.09.17	1	0	0	0	0	NBC	35mins by dinghy
12	MALAI		734	756		655	126	328		1	0	0	0	3		
		Malai	734	756	Lablab HC	655	126	328	27.09.17	1	0	0	0	3	NBC	50mins by dinghy
13	TUAM		486	449		402	77	202		1	0	0	0	0		
		Tuam	486	449	Lablab HC	402	77	202	27.09.17	1	0	0	0	0	NBC	1 hr by dinghy
14	MANDOK		962	1,011		1,074	168	538		2	0	0	0	3		
		Mandok	933	1,011	Lablab HC	862	136	432	28.09.17	1	0	0	0	3	NBC	20mins by dinghy
		Por-mandok c/sch	29	0	Lablab HC	212	32	106	29.09.17	1	0	0	0	0	NBC	30mins by dinghy/25mins by vehicle
15	GIAM		1,422	1,496		1,467	245	735		3	0	0	0	4		
		Aromot	1,202	1,202	Lablab HC	1,062	173	532	28.09.17	1	0	0	0	4	NBC	12mins by dinghy
		Mutu-Malau	181	294	Lablab HC	289	46	145	28.09.17	1	0	0	0	0	NBC	15mins by dinghy
		Giam com.sch	39	0	Lablab HC	116	26	58	28.09.17	1	0	0	0	0	NBC	10mins by dinghy
16	GUNE		1,830	1,605		1,654	298	829		2	0	0	0	3		
		Gauru	1,401	800	Lablab HC	821	130	412	29.09.17	1	0	0	0	3	NBC	20mins by vehicle
		Yangla	429	805	Lablab HC	833	168	417	29.09.17	1	0	0	0	0	NBC	15mins by vehicle
17	LABLAB 1		1,164	1,095		1,036	197	521		4	3	0	0	5		
		Birik	459	918	Lablab HC	658	131	331	30.09.17	1	1	0	0	1	NBC	5mins by vehicle
		Birik	236	177	Lablab HC	287	50	144	30.09.17	1	1	0	0	2	NBC	3mins by vehicle
		Bezek	343	0	Lablab HC	91	16	46	30.09.17	1	1	0	0	2	NBC	8 mins walk
		Toneso com.sch	125	0	Lablab HC					1						Included under Bezek
18	MARILE		1,406	1,519		1,447	213	726		3	1	0	0	3		
		Marile	669	826	Lablab HC	755	96	379	30.09.17	1	0	0	0	0	NBC	10mins by vehicle
		Yaga	489	540	Lablab HC	538	93	270	01.10.17	1	1	0	0	3	NBC	5 mins walk
		Marile putput log.bs	248	153	Lablab HC	154	24	77	30.09.17	1	0	0	0	0	NBC	8mins by vehicle
19	MABEY		2,023	2,299		2,071	359	1,037		2	0	0	0	2		
		Kabi	691	830	Lablab HC	903	169	452	27.09.17	1	0	0	0	0	NBC	45 mins by dinghy
		Kampalap	1,331	1,469	Lablab HC	1,168	190	585	27.09.17	1	0	0	0	2	NBC	30 mins by dinghy
20	MOVI		611	706		772	129	355		1	0	0	0	0		
		Sakar	611	706	Lablab HC	772	129	355	24.09.17	1	0	0	0	0	NBC	2 hrs by dinghy
				0												
WASU RURAL			15,535	17,090		17,886	3,190	8,600		63	54	0	0	691	59	
1	YAKAWA		437	518		497	89	227		2	2	0	0	6		
		Yakawa	223	263	Wasu HC	243	46	114	27.09.17	1	1	0	0	0	NBC	3 Hrs Trek From Sio
		Mula	214	255	Wasu HC	254	43	113	27.09.17	1	1	0	0	6	NBC	8 Hrs Trek From Sio
2	SIO 2		1,508	1,658		1,789	268	869		2	2	0	0	77		

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		Lambutina	1,065	1,060	Wasu HC	1,126	157	543	01.10.17	1	1	0	0	37	NBC	Dinghy
		Nambariwa	443	598	Wasu HC	663	111	326	01.10.17	1	1	0	0	40	NBC	Dinghy
3	SIO 1		1,508	1,561		1,639	294	760		5	5	0	0	97		
		Basakalo	349	267	Wasu HC	281	49	137	01.10.17	1	1	0	0	30	NBC	Dinghy
		Lailo	685	629	Wasu HC	670	114	308	01.10.17	1	1	0	0	13	NBC	Dinghy
		Balambu	474	387	Wasu HC	379	68	176	01.10.17	1	1	0	0	27	NBC	Dinghy
		Woka		162	Wasu HC	190	38	86	01.10.17	1	1	0	0	15	NBC	Dinghy
		Linsasa		116	Wasu HC	119	25	53	01.10.17	1	1	0	0	12	NBC	Dinghy
4	KULAVI		580	763		811	153	400		3	3	0	0	74		
		Bongo	222	237	Wasu HC	278	46	133	30.09.17	1	1	0	0	0	NBC	Dinghy
		Kulavi	359	446	Wasu HC	458	89	229	30.09.17	1	1	0	0	65	NBC	Dinghy
		Kasiva		79	Wasu HC	75	18	38	30.09.17	1	1	0	0	9	NBC	Dinghy
5	WASU		742	1,875		1,417	266	691		7	4	0	0	97		
		Wasu high sch	178	138	Wasu HC	151	24	67	28.09.17	1	1	0	0	0	NBC	Road
		Sio Compound	309	348	Wasu HC	613	99	299	28.09.17	1	1	0	0	58	NBC	Road
		Wasu stn	255	449	Wasu HC	385	55	179	28.09.17	1	1	0	0	6	NBC	Road
		Kulumut		193	Wasu HC	268	88	146	28.09.17	1	1	0	0	33	NBC	Road
		Weweko		162	Wasu HC					1						Included under Sio Compound
		Ulut		365	Wasu HC					1						Non Existant, same as in Wd 8
		Gomo		221	Wasu HC					1						Same as Wasu Stn
6	KIARI		701	787		762	146	359		3	3	0	0	22		
		Sigawa	181	377	Wasu HC	243	56	112	28.09.17	1	1	0	0	5	NBC	Dinghy
		Galuse	226	290	Wasu HC	257	48	124	28.09.17	1	1	0	0	16	NBC	Dinghy
		Kurata	295	120	Wasu HC	262	42	123	28.09.17	1	1	0	0	1	NBC	Dinghy
7	WELEKI		576	347		475	111	223		3	2	0	0	110		
		Bagalon	115	166	Wasu HC	184	39	87	28.09.17	1	1	0	0	39	NBC	Road / Trek 3 Hrs
		Engen	175	0	Wasu HC					1						Non Existant, same as in Wd 9
		Hupong	286	180	Wasu HC	291	72	136	28.09.17	1	1	0	0	71	NBC	Road / Trek 3 Hrs
8	TOWAT		1,403	1,155		1,774	306	870		7	7	0	0	14		
		Ipang	276	250	Etep Hos	320	50	157	29-30.09.17	1	1	0	0	3	93 FM	2-3 from Kikiong, the last village at end of access road
		Ulut	204	0	Etep Hos	366	50	180	29-30.09.17	1	1	0	0	0	93 FM	15minutes drive from Wasu, 45minutes drive from Etep
		Kikiong&Ngarikileng	303	234	Etep Hos	265	50	130	29-30.09.17	1	1	0	0	4	93 FM	1hour 20minutes drive from Etep
		Towat	341	201	Etep Hos	250	49	123	29-30.09.17	1	1	0	0	0	93 FM	2-3 Hrs Trek from Kikiong
		Bumbu	279	207	Etep Hos	226	40	111	29-30.09.17	1	1	0	0	5	93 FM	2-3 Hrs Trek from Kikiong
		Ngarikileng		248	Etep Hos	279	50	137	29-30.09.17	1	1	0	0	2	93 FM	Road, 40minutes drive from Wasu
		Towat Com Sch		15	Etep Hos	68	17	32	29-30.09.17	1	1	0	0	0	93 FM	2-3 Hrs Trek from Kikiong
9	WELOWELO		760	1,066		1,155	218	548		4	2	0	0	52		
		Toplan		NEW	Wasu HC	270	40	126	30.09.17	1	0	0	0	0	NBC	Dinghy / Trek 2 Hrs
		Engeng	87	328	Wasu HC	308	72	149	30.09.17	1	1	0	0	49	NBC	Dinghy
		Malasanga	419	471	Wasu HC	263	46	124	30.09.17	1	1	0	0	0	NBC	Dinghy
		Welowelo	254	266	Wasu HC	314	60	149	30.09.17	1	0	0	0	3	NBC	Dinghy
10	SINGOROKOI		640	815		1,000	162	465		4	4	0	0	11		
		Bungara	210	274	Wasu HC	351	50	156	29.09.17	1	1	0	0	3	NBC	Dinghy
		Singorakai	421	388	Wasu HC	484	88	237	29.09.17	1	1	0	0	0	NBC	Dinghy
		Bonasi com.sch	9	95	Wasu HC	66	8	28	29.09.17	1	1	0	0	8	NBC	Dinghy
		Sauron		59	Wasu HC	99	16	44	29.09.17	1	1	0	0	0	NBC	Dinghy / Trek
11	ROINJI		346	485		684	114	309		2	2	0	0	0		
		Koripon		NEW	Wasu HC	265	50	120	29.09.17	1	1	0	0	0	NBC	Dinghy / Trek 3 Hrs
		Roinji	346	485	Wasu HC	419	64	189	29.09.17	1	1	0	0	0	NBC	Dinghy
12	HONGO		1,067	1,164		1,125	206	560		7	7	0	0	28		
		kalalo	410	289	Etep Hos	251	49	122	28-29.09.17	1	1	0	0	2	93 FM	Road: 5minutes walk from Etep RH
		Mando	489	299	Etep Hos	282	49	142	28-29.09.17	1	1	0	0	0	93 FM	Road: 230minutes drive from Etep RH (Village is situated after Etep RH, between Satop & Etep RH)
		Kalalo com.sch	44	46	Etep Hos	53	8	24	28-29.09.17	1	1	0	0	8	93 FM	Road; 5minutes walk from Etep RH
		Etep health cntr	125	159	Etep Hos	183	34	94	28-29.09.17	1	1	0	0	10	93 FM	Road
		Ulap		72	Etep Hos	67	9	38	28-29.09.17	1	1	0	0	5	93 FM	Road: 20minutes drive from Etep RH (Village is situated after Etep RH, between Satop & Etep RH)
		Niat		92	Etep Hos	87	15	40	28-29.09.17	1	1	0	0	1	93 FM	Road: 5minutes walk from Etep RH
		Gimbonga		207	Etep Hos	202	42	100	28-29.09.17	1	1	0	0	2	93 FM	Road:15minutes drive from Etep RH (village is situated between Wasu and Etep)
13	SATOP		1,291	1,276		1,210	217	598		3	3	0	0	55		
		Pendeng	680	410	Etep Hos	388	70	192	29-30.09.17	1	1	0	0	16	93 FM	Road: 40minutes drive from Etep RH
		Satop	611	604	Etep Hos	544	97	272	29-30.09.17	1	1	0	0	9	93 FM	Road: 1hour drive from Etep RH
		Neng		263	Etep Hos	278	50	134	29-30.09.17	1	1	0	0	30	93 FM	Road: 5minutes drive from Etep RH
14	WAWET		617	518		326	74	157		1	0	0	0	7		
		Wawet	617	518	Etep Hos	326	74	157	29-30.09.17	1	0	0	0	7	93FM	3hours trek from Satop Village
15	DOMUT		890	440		512	84	247		1	1	0	0	0		
		Domut	890	440	Etep Hos	512	84	247	29-30.09.17	1	1	0	0	0	93 FM	2Hours Trek from Satop, the nearest village along access road
16	BELOMBIBI		900	835		731	128	355		2	2	0	0	8		

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		Belombibi	594	533	Etep Hos	464	81	227	28-29.09.17	1	1	0	0	4	93 FM	2 Hours Trek from Tagando village where the access road ends
		Tagando	306	302	Etep Hos	267	47	128	28-29.09.17	1	1	0	0	4	93 FM	1hour drive from Etep RH
17	KARANGAN		811	901		837	142	413		4	4	0	0	14		
		Sevalon		NEW	Etep Hos	47	9	26	28-29.09.17	1	1	0	0	1	93 FM	30minutes drive from Etep RH
		Meandum	217	277	Etep Hos	174	25	84	28-29.09.17	1	1	0	0	4	93 FM	40minutes drive from Etep RH
		Honpato	171	126	Etep Hos	134	25	68	28-29.09.17	1	1	0	0	9	93 FM	3hours trek from Tagando village where the access road ends
		Karangan	423	498	Etep Hos	482	83	235	28-29.09.17	1	1	0	0	0	93 FM	4hours trek from Tagando village where the access roads ends
18	NANAYA		758	928		1,142	212	549		3	1	0	0	19		
		Bobua	229	305	Wasu HC	553	92	270	29.09.17	1	1	0	0	17	NBC	Dinghy/Trek 4 Hr
		Bauya	209	213	Wasu HC	223	35	99	29.09.17	1	0	0	0	2	NBC	Dinghy/Trek 4 Hr
		Bonia	321	410	Wasu HC	366	85	180	29.09.17	1	0	0	0	0	NBC	Dinghy/Trek 4 Hr