UNIVERSAL ACCESS POLICY (UAP)
STAKEHOLDERS UPDATE REPORT NO. 9

UPDATE ON UAP IMPLEMENTATION

May 2018

The Telecommunications and Radiocommunications Regulator Office of the Telecommunications and Radiocommunications Regulator (TRR)

Executive Summary

This Ninth Universal Access Policy (UAP) Update Report provides an update to our stakeholders and the citizens of Vanuatu on the status of implementation of the Government's UAP up to May, 2018. It builds on TRR's Eighth UAP Update Report of June 2017 and is the penultimate report for the UAP project. This Report highlights the continued progress that has been made in respect of UAP implementation and, particularly, to successfully building on to the secured industry commitment and cooperation in meeting the UAP requirements and the key Government objectives, to bring benefit to the people of Vanuatu; in accord with the intention of the UAP, as well as the economy of Vanuatu.

The Telecommunications and Radiocommunications Regulator (TRR) continues to appreciate, recognise and acknowledge the commitment of the *Players* and industry at large for their achievements to date, and as presented in this Report. TRR also recognises the valuable assistance, cooperation and support from the Australian Government through its Governance for Growth (GfG) Program which has significantly contributed, through financial support, to its success via the deployment of telecommunications and internet access into remote and underserved areas of Vanuatu; particularly in respect of the Computer Lab and Internet Community Centres (CLICC) programs.

The significant milestones achieved over the course of the UAP Agreements by the industry and the stimulus arrangements funded from the UAP Fund, have enabled TRR to make some further important additional and progressive steps towards meeting the UAP objectives.

TRR has, importantly, taken a considerable proactive and guiding approach and lead role through the process of UAP implementation over the last few years; particularly in the negotiation, finalisation and signing of the UAP Player's Undertakings outlining commitments to the implementation of the UAP through the upgrading and rollout of new services, and the provisioning and deployment of equipment and materials for the UAP Information Communications Technologies (ICT) school and internet community centre programs.

TRR is pleased to advise that, based on the current UAP infrastructure deployed by the *Players* as well as TRR's modelling of mobile coverage, <u>the population coverage rollout has met the UAP obligation target of 98%</u> with industry bearing the full burden and with no Government financial input. TRR is also pleased to advise that the UAP obligation in regard to the upgrade of 2G services to 3G services has also been substantially completed with over 97% of sites upgraded. Finally, based on the agreed and approved information provided by all stakeholders

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involved including the Government, the TRR is also pleased to advise that the UAP obligation of all government schools, health clinics and other institutions be covered by high speed broadband has also been achieved.

TRR has completed rollout of the CLICC, the Tablets for Students (TFS) and the Internet Community Centres (ICS) programs. Feedback received from those sites that are operational has been positive; with students and the community being provided with basic skills training and students using the technology as part of the school curriculum. Demand for use of the sites is high, and is anticipated to increase considerably as E-government services are developed and rolled out.

The past period has seen the *Players*, Digicel Vanuatu Limited (Digicel) and Telecom Vanuatu Limited (TVL) completing their infrastructure rollout as per their Undertaking Agreements. There have, however, been some issues for the *Players* to overcome primarily due to land ownership disputes and this has had some impact on the infrastructure rollout; and is likely to be a continuing issue into the future.

TRR remains confident in, and is committed to, its methodology and approach to achieving the Government's UAP objectives by working collaboratively, cooperatively and constructively with the operators, the Government through the office responsible, stakeholders and other relevant parties.

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1. Introduction

As part of TRR's obligation in accordance with the UAP, TRR is required to report to the public on the progress of the UAP Implementation. Through this report, TRR's Ninth on UAP Implementation, TRR is pleased to inform its stakeholders and the public, of the significant progress made since TRR's Eighth UAP Update Report of June, 2017. This Report outlines key outcomes in the implementation of UAP that TRR in collaboration with the telecom industry has achieved as we moved towards closure of the UAP and substantial completion of the policy objectives.

The past six months of the year have seen continued satisfactory progression with the UAP programs and UAP implementation. In particular, the CLICC, TFS and ICS programs have been rolled out and have commenced operation. They have been well received by educators, students and the community alike. Whilst there have been some technical issues during this period, these have been addressed under TRR's guidance and watch; with what is believed to be more appropriate solutions to the environment in which these services are provided.

Key outcomes of the last six month reporting period include:

- Completion of the UAP Undertaking of new sites by the industry *Players*, with a total of 20 new sites operational as at December 2017;
- Substantial completion by the *Players* of the upgrade to all sites to 3G services, with 4G services now available in Efate, Santo, Malekula, Pentecost and Tanna (as commercial arrangements);
- Internet Broadband Satellite Coverage across Vanuatu by Kacific through wholesale arrangements with Telsat;
- Confirmation of the coverage obligations under the UAP of 98% of the population[1];
- Continued proactive TRR monitoring and evaluation of the UAP Undertakings program via visits to a number of UAP locations;
- Commencement of the monitoring and evaluation activity for the CLICC and TFS programs;
- Continued assistance, where warranted and/or requested, to various Ministries such as the Ministry of Education, Health, Agriculture, and NDMO providing expert advice and support to enable more effective use of the CLICC sites (see Section 3.8 of this report);
- Continuous TRR awareness programs on the benefit of using Internet Services/CLICC sites and other forms of data services such as mobile data.

These are significant milestones in the multitude of steps required in the implementation of the UAP and the facilitation of internet/ICT across Vanuatu to meet the Government's objectives.

This report will also be the penultimate report on the UAP implementation activities with resources now committed to investigating the next generation of policy for the further development of telecommunications access to remote areas of Vanuatu.

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[1] Based on 2009 population census and enumerated areas

2. UAP Telecommunications Service Undertakings

The 1st of January, 2018 marks an end to the Government of Vanuatu's Universal Access Policy (UAP) implementation. The Policy was developed and approved by the Council Of Ministers (COM) in December 2013 with the objective of expanding telecommunications services to the underserved and unserved areas of the country. The Telecommunications and Radiocommunications Regulator (TRR) was tasked as the implementing authority for the UAP rollout.

The primary objective of the UAP required that by 1st of January 2018, 98% of the Vanuatu population shall have access to the following telecommunications services:

- Voice;
- Narrowband data services, including text messaging;
- Upgrade the mobile networks from 2G to 3G technologies; and
- Broadband Internet services that shall enable a download speed of at least 2Mbps and upload speed of at least 1 Mbps[2].

A secondary objective of the UAP was to ensure that all Government offices and schools had the ability to access broadband data and internet services and that services offered outside Port Vila and Luganville were of comparable cost as that available in Port Vila and Luganville.

TRR acknowledges the *Players* commitment and dedication through their Undertakings towards upgrading all existing sites to support 3G services and cater for future LTE services, as well as extending their services to the people of Vanuatu. It is an indication of the *Player's* support and commitment towards the Government's UAP and its implementation.

It is also important to note that through Telsat's arrangement with Kacific Broadband Satellite a provider of High Throughput Satellite (HTS) services. TRR is pleased to report to you that Vanuatu is now covered with high speed Internet Broadband Access.

2.1 UAP Player Rollout

In June 2015, the TRR entered into an agreement with Telecom Vanuatu Limited (TVL) and Digicel (Vanuatu) Limited (Digicel), the *Players*, to undertake the UAP rollout which would see each operator forgo payment of the Universal Access Levy. Both TVL and Digicel agreed and commenced planning for twenty two (22) new tower locations across the country and the upgrade of the network to support 3G technologies.

By December 2017 the two main *Players*, Digicel and TVL have now completed their infrastructure rollout as per their Undertakings. A total of twenty (20) of twenty two (22) towers were implemented by the *Players*, two more than originally agreed. On top of this both *Players* implemented a number of other

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[2] Discussions with operators in 2013/14 resulted in a change in definition for the speed able to be achieved

sites not included in the UAP undertakings but from a commercial network development strategy with TVL going further and implementing a competitive 4G network in Port Vila, Luganville, Lakatoro, Lenakel and Melsisi further enhancing network capabilities

Figure 1 below shows the locations of TVL UAP sites as per the Agreement.

Figure 1 TVL UAP Locations

Figure 2 below shows the locations of Digicel UAP sites as per the Agreement.
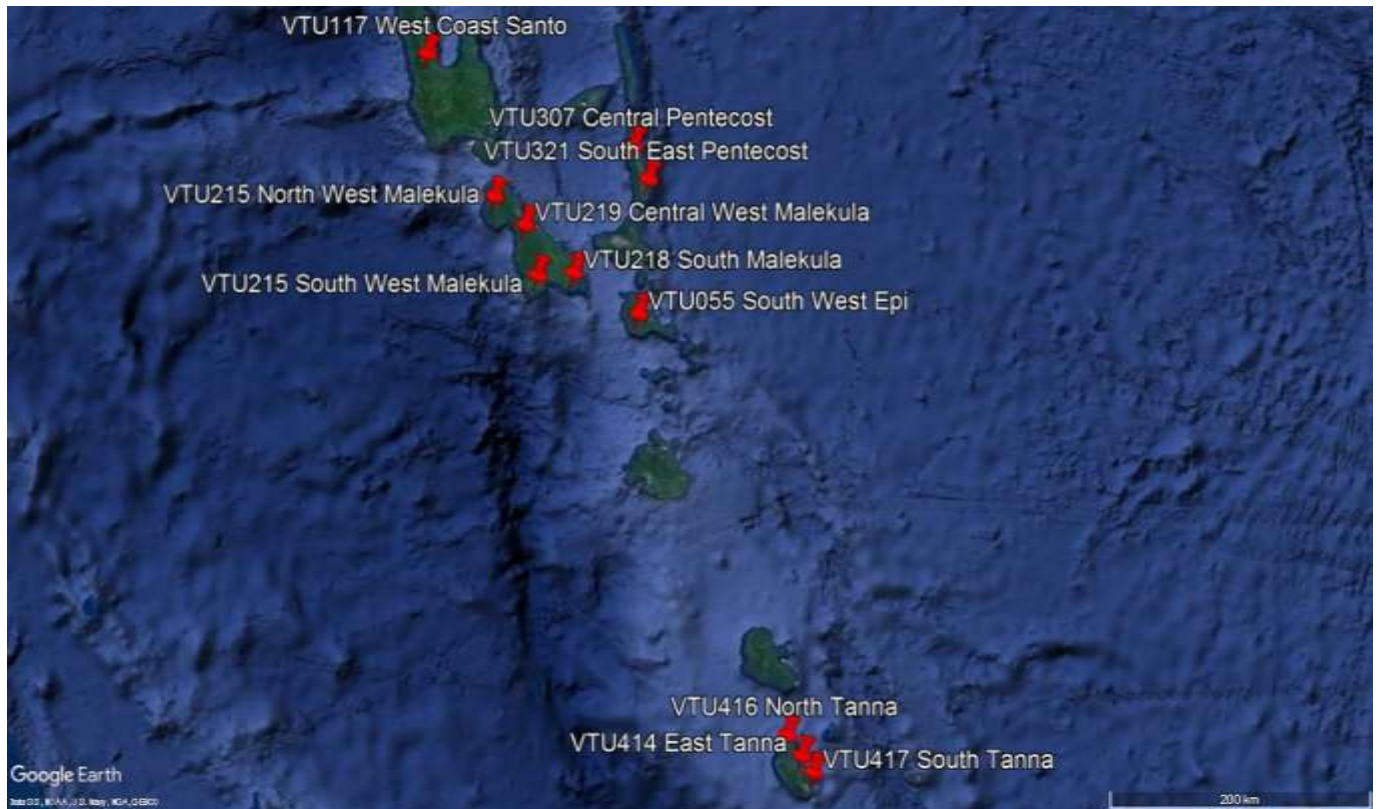
Figure 2 Digicel UAP Locations

Similarly, Telsat Broadband Limited (Telsat) has negotiated a wholesale agreement with Kacific Broadband Satellites Limited (Kacific) to provide retail services of the Kacific High Throughput Satellite (HTS) service providing the high speed broadband internet coverage across Vanuatu. The HTS services currently supports the Computer Laboratory and Internet Community Centres (CLICC) and Tablets for Schools (TFS) projects.
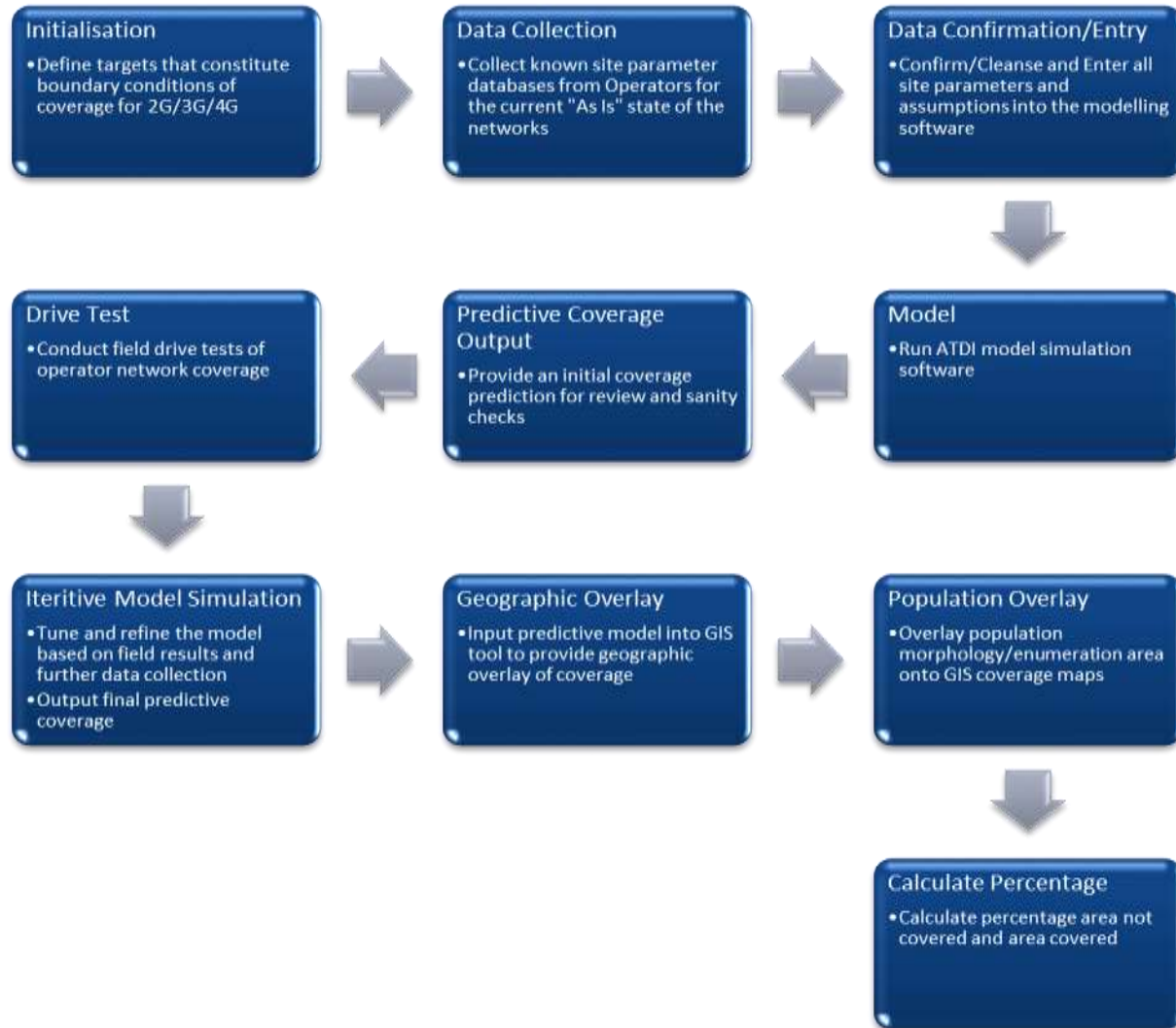
2.2 Population Coverage

A key UAP requirement is to ensure provision of coverage to 98% of the population of Vanuatu following completion of the UAP Undertakings. In order to confirm that this coverage obligation has been met/will be met, TRR must measure the coverage by an industry standard scientific basis by using appropriate infrastructure information supplied by the *Players*, using recognised industry software modelling tools, undertaking physical coverage analysis, considering population data provided by the Vanuatu National Statistics Office (VSNO) and considering any updated geographical information from Department of Lands.

TRR engaged a consultancy firm, SAT Pty Ltd (SAT), that specialises in mobile and radio communications to undertake two components of this activity. The first step was to develop a sound database of

infrastructure and spectrum in use by each of the operators. This data, which comprises information on tower heights, antenna directions, sectorisation, power output and frequency spectrum in use, is the key baseline information required for modelling purposes.

The methodology that was followed is presented in Figure 3 below

Figure 3 Population Coverage Methodology

Following collection of that information the data, along with population and terrain data is input into specialised modelling software, the ATDI Mobile Network Modelling tool, which provides a coverage analysis, deriving a percentage of the population to whom mobile services are currently available, using "as built" mobile network information sourced as part of a spectrum audit exercise undertaken in

January 2017. This was achieved through the development of a series of detailed predictive coverage maps.

Whilst predictive modelling provides a high level of confidence, there is a need to confirm the predictive modelling output for accuracy. In order to analyse a Radio Frequency (RF) prediction model and determine the accuracy, an iterative process of model tuning is necessary, requiring the analysis of a significant number of test measurements made at known locations in the field, and comparing these with predictions made by the model. This is achieved via a drive test, where vehicle mounted test equipment continually measured RSSI and GPS position, to gather the many thousands of samples required to facilitate accurate model tuning.

TRR and SAT employees travelled to Santo, Malekula, Pentecost, Efate and Tanna undertaking physical drive testing in these areas to gather localised data. Figure 4 below provides an example of the output from the drive test.


Figure 4 Santo Drive Test Output

The model tuning exercise undertaken was extremely successful, as prior to model tuning, the correlation between predicted and actual field test measurements was in the order of 70 - 71%, whereas on completion of model tuning, the level of correlation was approximately 95%. This provides greater accuracy and confidence of the coverage prediction output and subsequent percentage of population covered.

Using GIS mapping software, the verified coverage predictions were then 'overlaid' on to the 2009 Vanuatu census population data, to illustrate the correlation between coverage and geographic location of populated enumeration areas. The enumeration area provides the highest granularity of population data on a discrete land parcel basis, with some GIS attributes defined, which may typically include the

size of a household or rural plot. Population data statistics from 2009, the latest available nationwide, have been used throughout the exercise for consistency. Population data from the 2016 mini census has not been compiled into enumerated areas on a nationwide basis and was unable to be used for this exercise.
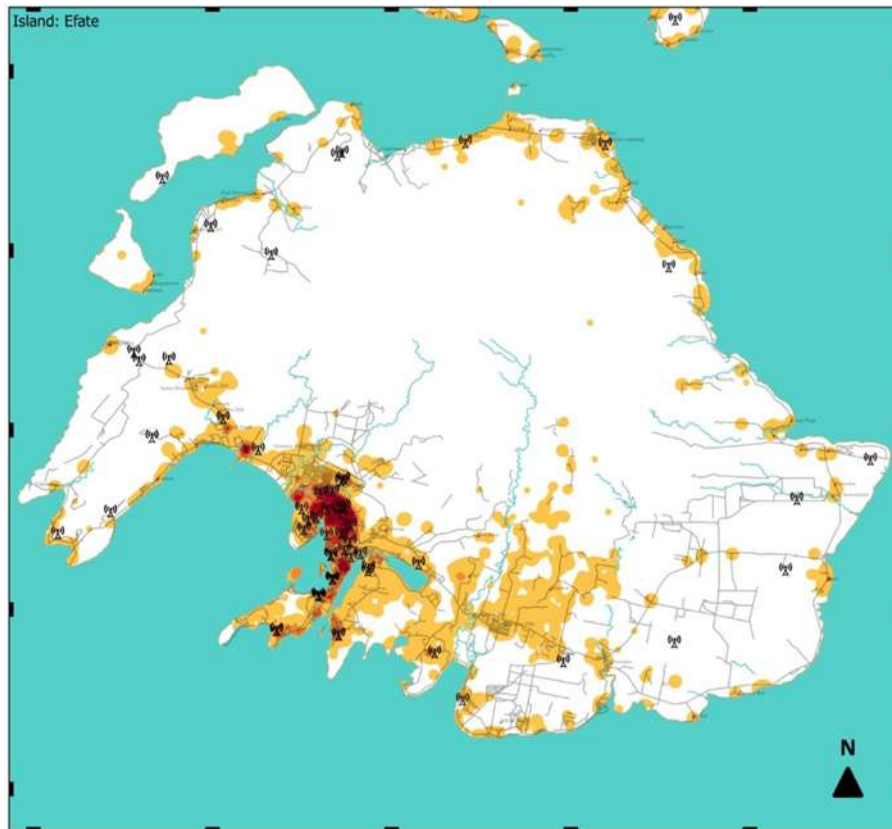
Figure 5 Geospatial Overlay of Population Data for Efate

It was then a case of adding the population assigned to each enumeration area identified as having no mobile coverage, to derive a total number of the population without current access to mobile telephony/data services. This detailed level of analysis can then be used to derive percentages of the population able to access mobile telephony/data from a local area through to a national basis.

Following refinement of the model and completion of the predictive modelling exercise, the TRR discussed the outputs with both *Players* to ensure alignment of the outcomes with *Players* own predictive models where available. The TRR was pleased to note that both *Players* agreed with the output that was achieved by the exercise.

The results of this exercise, that is the percentage of total population of Vanuatu with access to mobile telephony/data services are summarised in the tables below;

Phase	Pre UAP (January 2017)			Post UAP Upgrades (January 2017)			Post UAP Upgrades +3G upgrades to all 2G sites (August 2017)		Post UAP Upgrades +3G upgrades to all 2G sites (January 2018)	
Technology	2G, 3G (GSM,WCDMA)			2G & 3G (GSM,WCDMA)			3G WCDMA		3G WCDMA	
Service	Voice/SMS		Data	Voice/SMS		Data	Voice	Data	Voice	Data
Threshold	ECC 231[3]	95% conf[4]	2048 Kbps	ECC 231[4]	95% conf[5]	2048 Kbps	ECC 231[4]	Cap. Dim.[5]	ECC 231[4]	Cap. Dim.[6]
Combined TVL + Digicel networks	87%	84%	52%	91%	89%	57%	98.3%	86%	98.8%	86.2%

<p align="center">Table 1 Percentage of Population Covered – Combined Network Coverage</p>

It can be clearly seen that over the process of the UAP activity population coverage for mobile voice has increased by 11.8% from 87% to 98.8%. Similarly mobile data coverage has increased significantly from 52% to 86.2% an increase of 34.2%. This clearly shows that the objectives of the UAP have been met with significant increases in population coverage for both voice and mobile data services.

A finalised coverage map will be made available via the TRR website.

A note on coverage. Coverage prediction is not absolute, but a best estimate of the likely coverage. Likewise physical coverage is not absolute due to a myriad of factors that can affect coverage in an area but, like any radio-based network, coverage is going to vary in quality and availability. This could be because of the type of device, how close the subscriber is to the nearest mobile tower, or how many people are using the Network at that particular location. Most importantly, local conditions such as mountains, hills, valleys, and foliage, as well as concrete structures will affect reception even though coverage has been predicted within that area.

UAP sites have provided coverage in areas where there was no coverage previously. With the availability of coverage, positive impacts have been observed and experience by the villages, some of which are:

- People may now make calls from their own village or a short distance away (depending on the surrounding terrain;

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[3] EEC231 threshold 2G 34 dBµV/m; 95% confidence. CEPT ECC, "ECC Report 231 Mobile coverage obligations", 6 March 2017
[4] Confidence interval: TIA, TSB-88.1 "Wireless Communications Systems Performance in Noise and Interference-Limited Situations Part 1: Recommended Methods for Technology Independent Performance Modeling", Revision D, October 2013
[5] Cap. Dim. – Capacity dimensioning

- This is a significant improvement over no coverage or having to walk a significant distance (more than 5 kilometres);
- Coverage has facilitated the efficiency and effectiveness of getting something done. For example, in the case of organising transport to collect produce for transport to markets in Port Vila, messages were delivered to the driver by being passed on from one person to another, with the outcome that in many cases that the message never reached the drive leading to a loss of income and spoiled goods. However with coverage, people can call the driver direct, check their availability, obtain information on when the ship is arriving, inform the driver to pick up the produce and make arrangement for transport at the final destination;
- Coverage has facilitated the reduction in business cost. Schools may now call stationary shops and place their order, and their order is delivered to them, without spending any money on transport;
- Communities are now more informed. Access to social media in particular Facebook have enabled the communities to engage both nationally and internationally. This has indeed empowered communities with decision making;
- Communities may now have their voice heard in national developments or any development related to their community through use of social media and information sharing;
- Coverage provides the opportunity for loved ones to stay connected through voice calls of via social media applications. Group accounts through Facebook are being created for discussions on particular family matters enabling a consensus resolution to issues arising.

2.4 3G Upgrade

The UAP also required the *Players* to upgrade their current network to 3G technology to allow the population to take advantage of higher data rates. This activity required the *Players* to visit every tower location to add appropriate infrastructure to support this upgrade. This infrastructure included upgrading power systems, adding specific 3G technology to the Base Transceiver Station (BTS) and increasing the capacity of the backhaul transmission system to support the expected increase in data traffic from the upgrade. Over 97%[6] of the networks had now been upgraded to 3G with 4G services released in Port Vila, Luganville, Tanna, Malekula and Pentecost.

2.5 Coverage of Government Facilities

The third major component of the UAP program was to ensure that all government facilities, such as schools, offices, health clinics and other government institutions had available to them broadband internet services. It is not physically possible to cover all government sites via the mobile network alone and so a complementary solution was required to satisfy this UAP obligation.

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[6] At least two sites in Ambae have not been upgraded due to the volcanic activity in the area and the impending relocation of the population to other localities

Figure 6 and Figure 7 following, show the coverage provided by Kacific. Figure 6, shows the current coverage on the Ku band from the existing service provided from a third party satellite platform. Vanuatu is well covered in the centre of the beam with the highest power.
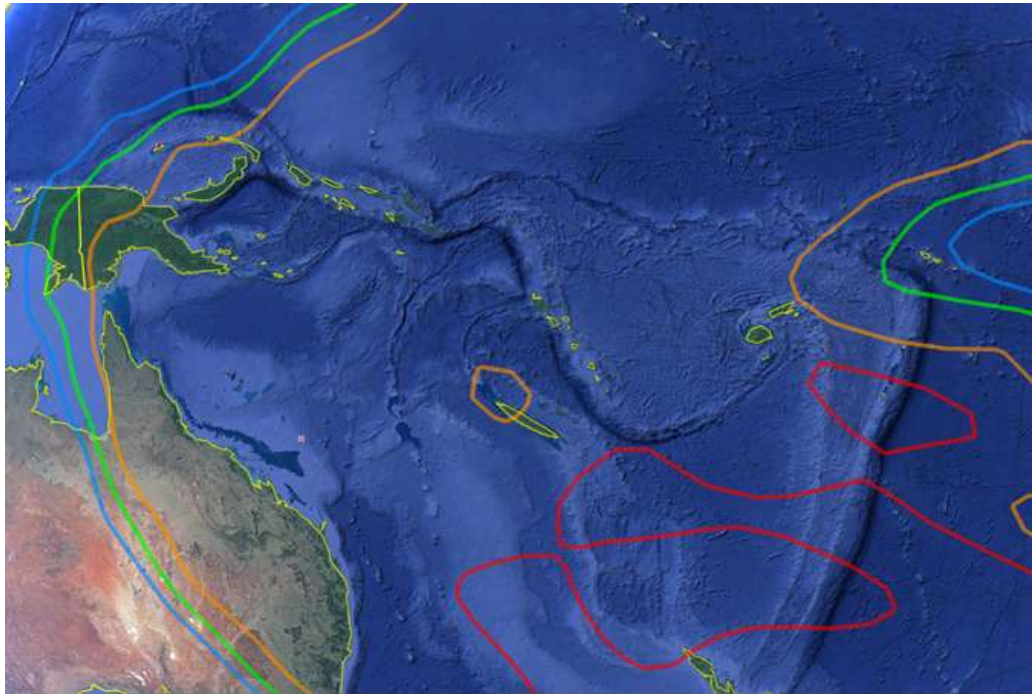
Figure 6 Kacific Ku Band Coverage Across Vanuatu

Figure 7 below, shows the coverage from multiple beams on the Ka band service which will be provided on Kacific's own satellite solution from mid-2019. In both cases Vanuatu is well covered with in regard to the provision of high speed broadband Internet services now and into the future.
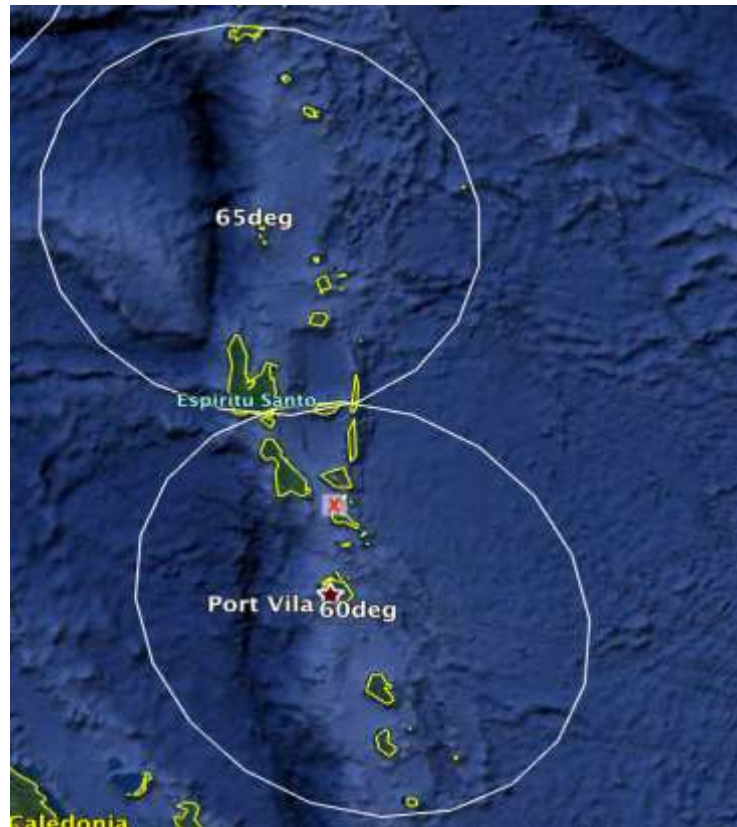
Figure 7 Kacific Ka Band Coverage Available From 2009

2.6 Implementation Experience and Issues

Both *Players* have had numerous issues to overcome during the rollout of infrastructure, and this impacted not only the rollout of towers but also to added significant extra financial burden to the *Players* financial outlay. These issues are summarised as follows:

1. Both *Players* experienced significant delays to their rollout due to land ownership disputes. These disputes, whilst now resolved or still under dispute, significantly slowed progress on the infrastructure build and added cost to the build, delaying the economic return and the social benefit associated with this build;
2. Extraneous land disputes impacting key network sites have also impacted progress as these activities divert focus to resolving an issue that, although impacts the UAP sites, has a greater impact on the continuance of service to a larger number of operating sites;
3. Commercial disputes with local labor whereby demands for more money and other benefits above and beyond what had been contractually agreed have continued to impede works at sites and increase costs for construction;
4. Acts of extortion or blackmail from various communities in order to extract a greater financial benefit or some other benefit such as vehicles and free phones/credit;

5. Threats of violence towards personnel engaged in the infrastructure build impacting on the completion of UAP sites;
6. Theft or the removal of equipment from sites impacting infrastructure build delaying completion and increasing costs;
7. The ineffectiveness of local law enforcement agencies in assisting and upholding the law as identified in the Telecommunications Act;
8. Increasingly difficult terrain requiring a significant amount of pre-work with road construction and clearing prior to civil works commencing. This has led to *Players* modifying site location in order to reduce the capital cost required for establishment;
9. Escalating costs for logistics (specifically transport and local labor) impacting Return On Investment (ROI) in marginal localities.

These issues delayed much of the progress of the project and compressed a significant portion of the build into the last half of 2017. They also contributed to a direct increase in costs to the *Players* and indirectly to the consumer, impacting the community with service availability and leading to concern over the viability of future projects such as this.

2.7 Financial Commitment

All *Players* have had to commit significant financial contributions in order to complete the UAP sites as per their UAP Agreements. It is estimated that each new UAP site cost in the vicinity of VT50 million ($USD450,000) whilst each site upgrade to 3G technology cost approximately VT3.7 million ($USD35,000). This brings the overall financial contribution of all *Players* to approximately VT1.6 billion (approximately $USD15 million).

Whilst a significant proportion of this expenditure is on capital equipment such as towers and telecommunications infrastructure, there is also a direct contribution to the local economy through shipping, transport and local labour engagement. In some cases the *Players* are seeing a return on this investment, however many UAP sites in low population centres are likely to operate at a loss to the *Player* in the medium term.

3. UAP Programs

The UAP programs announced during 2014 as part of an initiative between TRR, OGCIO, Ministry of Education and Training and the Australian Government under its Governance for Growth (GfG) program has been completed and handed over to the responsible authorities. The programs are:

- Computer Laboratories and Internet Community Centre (CLICC);
- Tablets for Students (TFS);
- Internet Community Services (ICS).

TRR is finalizing the monitoring and evaluation exercise as part of its obligations under the CLICC program to the Australian Government's Governance for Good (GfG) program, the original funders for the CLICC project.

3.1 Computer Laboratories and Internet Community Centres (CLICC)

The CLICC centres were a significant part of the UAP program with 15 schools, being provided with computer labs, for general educational purposes and for use by the community during and after school hours. The objective of the CLICC sites was to facilitate and stimulate the UAP rollout and, primarily, increase the knowledge and use of ICT within the school environment, integrate ICT into the curriculum and utilise educational materials for learning. Secondly the infrastructure has facilitated the use of the OpenVEMIS school and student management application. Thirdly, the CLICC site is open to the general community for their use to again increase and improve knowledge of ICT, increase the development of local content and provide a central hub for the delivery of eGovernment services, such as health and agriculture, into the future.

The CLICC sites have been operating for well over 24 months and continue to be well received by the student body and the community in general. Teachers have quickly integrated the CLICC into the school curriculum, at appropriate levels according to the age of the students involved. The level of demand and desire of the student body to engage and use the CLICC has been exceptional with, in some cases, students moving quickly to the CLICC room or asking teachers if they can access the room. Likewise, the interest and engagement of the community has seen many people come to the CLICC site and start to use the infrastructure.

Monitoring of the data volume has been ongoing since the implementation of the CLICC sites in 2016 until project completion in 2017, and is shown in Figure 8 below:
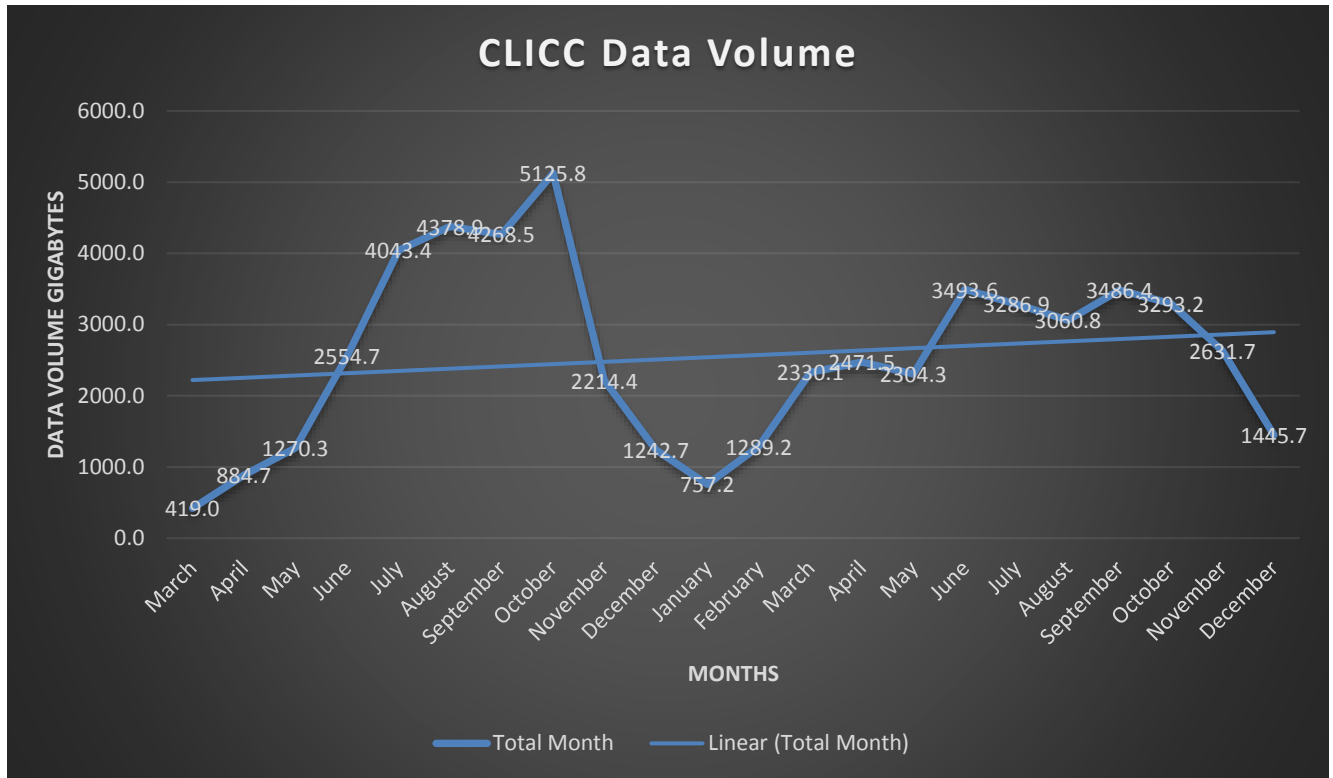
Figure 8 CLICC/TFS Data Volumes (March 2016 - December 2017)

The graph clearly shows an increasing trend for data consumption across all schools. The graph also clearly shows the school years with the dip associated with the summer school holidays, however the CLICC sites were still open and used by the community during this period. As school recommenced, the data volume subsequently rose. It should also be noted that the drop towards the end of 2017 occurred during the first Ambae evacuation where three CLICC sites are located (St Patricks, Ambaebulu and Torgil RTC). The drop off also coincided with the early closure of government schools due to the mini games held in December 2017.

Figure 9 below shows the data volume consumed from March to December 2017 at each individual school. Generally, the larger schools (by student cohort) are the greatest consumer of data. Again the data clearly shows the summer holidays, as well as the increase once school commenced for the 2017 year. Interesting the consumption is lower than previously which may mean that the novelty of access has worn off and the CLICC site at that school is now running in a more "as usual" fashion.
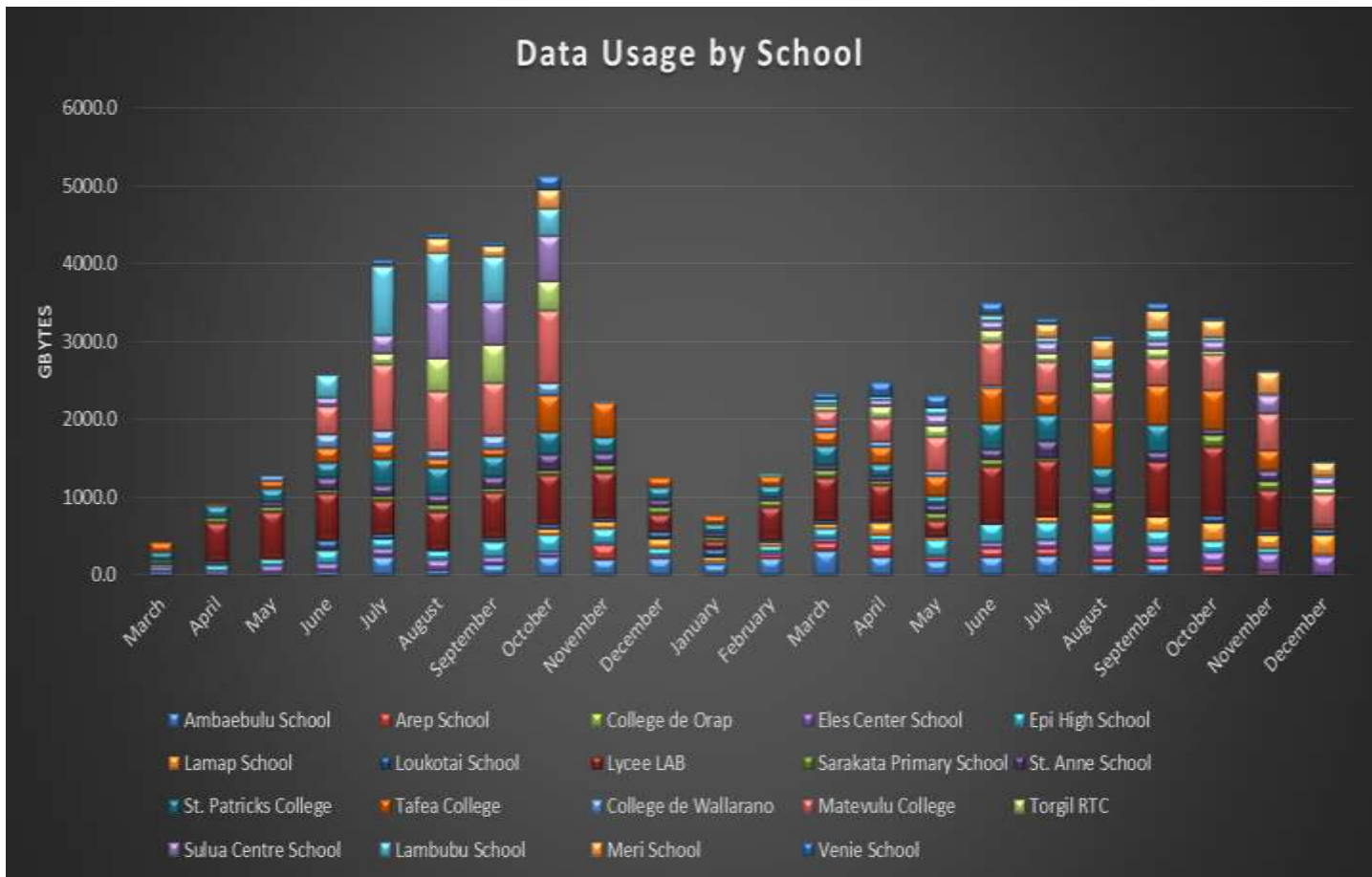
Figure 9 Data Volumes for Schools (March 2016 - December 2017)

3.2 Tablets for Students

All TFS program schools have had delivered their complement of fifty tablets (with appropriate educational applications for evaluation).

3.3 Internet Community Services

The ICS program is now completed and the TRR is concerned only with the general monitoring of the operations. Across all sites there is a strong demand for more government services to be available online for the local communities to access. Of the three (3) sites in operation, Ituani Informesen & Communikesen Senta, Malo has progressed the furthest being proactive in engaging with the community and in providing training and commercial services to the community. Ituani has also been the most entrepreneurial in that they have recently opened a second location in Malekula following the same model as for that the Malo center.

3.4 Monitoring and Evaluation

TRR was the recipient for a research grant through the GfG to undertake this Monitoring and Evaluation (M&E) task. GfG have shown positive interest in the project and are keen to see the outcomes and strategies well documented and able to be used for further funding rounds. As such the M&E is currently being undertaken and a full report is expected by the end of May. This report will be provided to TRR, MoET and OGCIO for discussion. The M&E associated with the CLICC and TFS sites is relates more to importance of the infrastructure to the educational environment and community.

The primary purpose of the M&E task is to:

- Evaluate and identify the benefits arising from the increased use of ICT by students, teachers and school administrators, including to the support and in the course of the educational process;
- Evaluate and identify the benefits arising from the use of ICT by the surrounding local communities and businesses, including enhancing their day to day social and business activities;
- Identify future strategies that can be implemented from an educational and community perspective to increase the use of ICT and improve the sustainability of the identified benefits;
- Collect, assess and report the findings of the monitoring and evaluation exercise.

3.5 Extension of CLICC Pilot

Consideration was given to utilising the remaining GfG funding to extend the CLICC pilot. However, and unfortunately, the lack of engagement from MoET does not give the TRR confidence that MoET will be able to support, both financially and technically, the current sites; let alone any further additional sites. It has therefore been decided that the funds will be directed towards training at each of the sites. This training will be twofold. The first is technical training on the infrastructure in place at the sites and how to support that infrastructure in the short to medium term. This will ensure that all CLICC/TFS sites and MoET representatives have been retrained prior to handover of the sites. Secondly further hands on ICT training for the local community considering basic ICT, application and social media training will be provided were this is appropriate.

3.7 ITU Emergency and Community Centre

The ITU project to support Emergency and Community centres has effectively stalled at ITU level. There are current discussions between ITU and various partners supporting the project that need to finalised prior to any further action being undertaken.

3.8 Assistance into Government Agencies

TRR continued to engage with a number of government agencies in order to facilitate the use of the CLICC sites, or to assist in specific projects via the provision of expert advice and strategic direction. For example TRR continues to engage with the Ministry of Health on their telemedicine project and future communications needs; MoET on CLICC sites and M&E; Vanuatu National Provident Fund on use of the CLICC by travelling agents and NDMO on the establishment of the National Emergency Telecommunication Plans.

4. Reporting

As this is the penultimate report, the TRR will issue a brief final report to the stakeholders and the public on the implementation of the final infrastructure build and summary of the CLICC/TFS M&E exercise. It is the view of TRR that the obligations under the UAP have been substantially met and benefits are accruing to the community from the expansion of the network and the availability nationwide of high speed broadband services.