Net Effects: Social and Economic Impacts of Telecommunications and Internet In Vanuatu: Research Findings Report 2011-2012

Inside front cover

[Insert CIP data]

The study team comprised:

Research Manager: Anna Naemon

Primary Analyst and Author: Seini O'Connor

Primary Research Assistants: Frida Bani and Ben Kaurua

Editors: Nikunj Soni, Derek Brien, Tess Newton Cain

The many additional contributors to this study are listed in the Acknowledgements section of this report.

Suggested academic citation for this report:

Seini O'Connor, Anna Naemon and Bimbika Sijapati-Basnet. Net Effects: Social and Economic Impacts of Telecommunications and Internet In Vanuatu: Research Findings Report 2011. Port Vila, Vanuatu: Pacific Institute of Public Policy.

Published by the Pacific Intitute of Public Policy

4th floor Datec Innovation Center

Lini Highway, Port Vila, Vanuatu

Telephone/Fax: +678 29842

Email: pipp@pacificpolicy.org

Website: www.pacficpolicy.org

Contents

Acknowledgements

The efforts and contributions of more than a thousand people produced this report. Our special thanks go to the 1,197 household survey participants, and community members who took part in the qualitative interviews in the following sixteen locations across Vanuatu: Blacksands and Freshwota (Efate), Chapius East and Port Olry (Santo), Port Narvin and Unpongkor (Erromango), Ngala and Lamen Bay (Epi), Levetlis and Atangurua/Antabulu (Pentecost), Sola and Vetumboso (Vanua Lava), Lenakel and Lamnatu-Middle Bush (Tanna) and Analghowhat and Umej (Aneityum). We also greatly appreciate the support provided to this research project by the Ministry for Infrastructure and Utilities (MIPU), AusAID Governance for Growth (GFG), Vanuatu Telecommunication Regulator's Office and Vanuatu National Statistics Office (VNSO).

The following people directly contributed to the research and report preparation.

Peer review

Peter Inglesby
Bimbika Sijapati-Basnett
Dan McGarry

Field work planning assistance

Mr Alan Horne (Vanuatu Telecommunication Regulator)
Ms Lizzie Taure (Telecommunication Regulator's Office)
Mr Kevin Tari (VNSO)
Mr Benuel Lenge (VNSO)
Mr Peter Koime (VNSO -Torba Province)
Mrs Vania Manugai (VNSO-Luganville)
Mr Christopher Mackenzie (Assistant General Secretary, Torba Province)
Mr David Tarvurvur (Acting Secretary General -Tafea Province)
Mrs Ellen Bitalau (Travel and Administrative)
Mrs Jenniffer Kapokas Doan (Project Monitoring)

Field dData collection support

Mr Richard Shing (Field Research Supervisor)
Mr Arua Nafuki (Field Research Supervisor)
Mrs Linda Kenni (Qualitative Field Research Supervisor)
Mrs Mary Sassia (Field Assistant, Tafea Province)
Mr Chief Roy (Field Assistant, Torba Province)
Mrs Leonie Boe (Field Assistant, Santo)

Enumerators

Mrs Erica Boe (Santo)
Ms Norah Dick (Santo)
Mr Billy Was (Santo)
Mr Oliver Nev (Santo)
Mr David Tevi (Santo)
Mr Joel Ham (Santo)
Mr Solomon Wai (Santo)
Mr Patu Dick (Santo)
Mr Bob Din (Santo & Vanua Lava)
Mr Peter Koime (Vanua Lava)
Mr Silas Bulu (Vanua Lava)
Mr Eziekel Manar (Vanua Lava)
Mr Denzley Bet (Vanua Lava)
Mr Yuone MacKennzie (Vanua Lava)
Mr Maigun Wotlemaro (Vanua Lava)
Mr Leo Hinge (Pentecost)
Mr Tonny Liu (Pentecost)
Mr Dieno Sao (Pentecost)
Ms Betty Hango (Pentecost)
Mr Rodley (Epi)
Mr Naunga Phillip (Epi)
Mr John Paraliyu (Epi)
Mr Graham Jack (Epi)
Mr John Cliff (Epi)
Ms Irene John (Epi)
Mr Luie Noyae (Erromango)
Mr Daniel Upakai (Erromango)
Mr Joe Rugu (Erromango)
Ms Sonia Runua (Erromango)
Ms Matilda Narai (Erromango)
Mr Jacob Haris (Tanna)
Mr Christopher Kiel (Tanna)
Mr Jeffrey Nalawas (Tanna)
Mr Jason Natoh (Tanna)
Mr Sam Tamuru (Tanna)
Mr Hilton Lulu (Tanna)
Mr Noclam Charley (Tanna)
Ms Lavinia Isaac (Tanna)
Ms Marie Willie (Tanna)
Ms Lulu Jean Boseo (Tanna)
Mr Antoine Dakere (Aneityum)
Mr Kaiyapi Henry (Aneityum)
Mr Hhiwaya Anon (Aneityum)
Mr Selwyan Daniel (Aneityum)
Ms Hariet Benjamin (Aneityum)

Mr Dunsten Huri (Pentecost)

Ms Annalyn Melkum (Erromango)

Data entry operators

Mr Jack Tom (Efate)
Mr Riwatu Riwai (Efate)
Ms Helen Daniel (Efate)
Ms Viran Vira (Efate)
Mrs Linda Kenni (Efate)

Executive summary

This report presents findings from the third in a series of studies on telecommunications use, benefits, and constraints in Vanuatu. This series of studies—undertaken by the Pacific Institute of Public Policy in 2008, 2009, and 2011—has helped illuminate the economic and social impacts of telecommunications market liberalisation. For those living in Vanuatu, many of these impacts are clear: prior to 2008, people in Vanuatu had limited access to phones, but now mobiles are a common household item. Since 2008, both the incumbent, Telecom Vanuatu Ltd (TVL) and the new provider, Digicel, have expanded services across the country, including to remote islands in the north and south. Modes of communication are changing, new business ventures are emerging, and mobile phones are becoming a part of everyday life. The Pacific Institute of Public Policy has been mapping these changes.

The 2011 study, which this report focuses on, adds to findings from the 2008 and 2009 reports not only by exploring the ongoing impacts of increasing telephone access, but also by investigating the constraints imposed by complementary infrastructure, and patterns of internet uptake. The study was extensive, including over one thousand face-to-face household surveys, and nearly one hundred in-depth focus groups and semi-structured interviews with community representatives and small businesses. Data was collected in 13 rural and 3 urban research sites across eight islands of Vanuatu between March and June 2011.

Phones are prevalent throughout Vanuatu…

Perhaps one of the most prominent and persistent themes emerging from the study results is that phones—in particular, mobile phones—have become a primary mode of communication across the country. The overwhelming majority of households had access to a mobile phone; four out of five survey respondents reported personally owning a mobile phone; and at the household level mobile phones appeared to be the most commonly owned electrical appliance. From 2008 to 2011, increasing numbers of households in both rural and urban areas obtained access to multiple (3 or more) mobile phones.

…but in rural areas, their use is more limited

Despite these clear countrywide patterns, there were some interesting differences between urban and rural areas. For instance, although mobile phone penetration in rural areas is high, rural respondents reported using their phones less frequently than urban respondents. This may reflect limited service coverage, and perceived cost: more focus groups in rural areas expressed concern about the difficulty of obtaining a reliable service signal, and discussed the expense of using mobile phones. Although a number of respondents reported using both Digicel and TVL services in an attempt to maximise cost-savings and coverage reliability, in several areas consumers still only have one choice of provider.

…which may be partly attributable to poor transportation and electricity services

In addition to coverage concerns, the usefulness of phones may also be limited by deficiencies in parallel infrastructure. Results from both the household survey and focus groups indicated that poor wharf services were a major inconvenience and source of inefficiency, limiting the potential gains made through improved communication by phone. In addition, few rural areas had grid-supplied electricity, and thus had to rely on solar cells, batteries, and diesel generators, which can be costly to set up and operate. In such areas, fewer residents were able to charge their mobile phone batteries at home, and ownership of other electrical appliances such as televisions and computers was very limited.

The benefits of phone use are still widely felt…

Nevertheless, as with previous years, respondents in 2011 reported a wide range of perceived benefits of increased access to mobile phones, including multiple commercial and financial

benefits, connecting with social networks, and accessing key services and information. The greatest positive impacts from phones appeared to be in enabling more frequent contact with family and friends and increasing the speed of communication. Access to health care services and to increased social support was also seen to have improved somewhat as a result of increased access to phones, and, since 2008, increasing numbers of respondents have noted benefits in gaining access to specialised services. In contrast, more than a quarter of respondents felt that phones had not helped them at all in terms of improving communication with government departments.

…and are likely still to be fully realised in rural areas

Again, though, there were some interesting urban-rural differences in the results. Phones appear to have become more integrated in urban communities: nearly three quarters of urban respondents said they could not continue their current economic activities, or could only continue with difficulty, if they could no longer use mobile phones. In contrast, fewer rural respondents were currently so reliant on their phones, in several cases reporting that the loss of phone contact would make no difference to them. However, focus groups revealed that rural respondents were more likely than urban respondents to focus on improving telephone services as a community priority. This suggests that because mobile phone use is more recent and still constrained in rural areas, its benefits have yet to be fully realised (but people see its potential).

Some other forms of communication are diminishing in importance…

The rise of mobile phones appears to have been accompanied by the decline of other modes of communication. Use of fixed line phones was low across the country, and the availability of public phones in rural areas appears to have been declining, likely due to the costs of maintenance and the inconvenience of travel for rural communities. Looking back across the 2008, 2009 and 2011 studies, the use of letters and communication via local leaders has been steadily decreasing, as has the perceived importance of other such traditional communication forms.

…but direct face-to-face contact is still valued, and some social concerns about phones persist

Nevertheless, phones have not been a direct substitute for face-to-face interaction, which remained a preferred channel for many communication purposes. Furthermore, respondents expressed several concerns about the negative impacts of mobile phone use, particularly related to a breakdown in social relations and divergence from traditional behavioural norms. This suggests that face-to-face communication will remain important within communities, and that the greatest benefits of phones arise when they are used in constructive ways to improve connectivity with distant correspondents, rather than to break down close social connections.

Another concern that some respondents raised is that phones are costly. However, there was no evidence that people were substituting expenditure on essential items for expenditure on phones, and most respondents limited the amount they spent on phones to no more than 1,000 vatu per month—approximately 2 per cent of the mean monthly income across respondents.

Internet use is still limited

In stark contrast to the data on phones, the majority of survey respondents did not have internet access—reflecting the absence of services in most areas. Those who did tended to use internet cafes or access the internet at their workplaces, and to a lesser extent through mobile phones and on home computers. Respondents perceived the internet to be important, especially for news and information, but did not view it as essential. Perceived cost, limited network access, and lack of experience with the technology appeared to be key barriers to increased usage.

Overall, these results suggest that mobile phone use is widespread throughout Vanuatu. Although people are enjoying greater connectivity, there are still some constraints on achieving further economic and social benefits.

Introduction

A survey conducted by the International Telecommunication Union (ITU) in 2009[1] indicated there were approximately 4.1 billion mobile phone users across the world—an increase from one billion in 2002. In addition, close to a quarter of the worlds 6.7 billion people were using the internet. The survey findings clearly showed that the significant growth in information communication technologies is rapidly changing societies, particularly societies in developing countries where ineffective communication infrastructures are a hindrance to economic growth. However, the cost of mobile and internet services in developing countries appears to be high as a share of average incomes.

The Pacific Institute of Public Policy (PiPP) has undertaken a series of studies (in 2008, 2009 and 2011) to investigate whether these global patterns of communication proliferation, benefits, and constraints are representative of the experience in Vanuatu. Vanuatu provides a particularly interesting case study, as the country had very limited telecommunications access prior to market liberalisation in 2008. Since then, both the incumbent, Telecom Vanuatu Ltd (TVL), and a new provider, Digicel, have expanded services across the country. Over this period, PiPP's studies have traced the links between access to mobile phones and economic productivity and social livelihoods. The 2011 study, which this report focuses on, adds to the 2008 and 2009 findings not only by exploring the ongoing impacts of telephone access, but also by investigating complementary infrastructure constraints and internet uptake.

Our 2011 study on communication technology in Vanuatu used mixed methods, comprising 1,197 face-face household surveys, 62 adult focus group discussions, and 31 small–medium business semi-structured interviews. Data was collected in 16 rural and urban research sites across eight islands of Vanuatu between March and June 2011.

In this report, we provide a comprehensive discussion of the household survey results, supplemented with key insights from the qualitative investigations. We also draw comparisons between findings from the 2008, 2009, and 2011 surveys, highlighting how mobile telephony continues to benefit people throughout Vanuatu. We have broken the remainder of this report into eight sections.

We begin with a discussion of the literature on mobile phone communication and internet access (section 1), to place our findings from Vanuatu in a global context. Next, we describe our methodological approach in detail (section 2), explaining how we gathered and analysed the study data. The major body of the report then presents results broken down by general theme. First we discuss household economics (section 3), including how much respondents earned from different sources, and their expenditure. We then look at communication preferences (section 4), identifying how telephones compare with other forms of communication. Next, we discuss complementary infrastructure (section 5), focussing on how important electricity and transportation are for people throughout the country, and how constraints in this infrastructure can limit the benefits of telecommunications. Our largest section then discusses telephones (section 6)—how people use them, how much people spend on them, and how beneficial people perceive them to be. Following this, we discuss similar topics for the internet (section 7), presenting results from questions asked for the first time. The final section presents results from cross-time comparisons (section 8), looking at what has changed and what has stayed constant over the 2008, 2009, and 2011 surveys.

1. ITU (2009). *Measuring the Information Society - The ICT Development Index*. www.itu.int. Also: Tryhorn, C. (2009). 'Nice talking to you…mobile phone use passes milestone'. The Guardian, Monday 2 March.

1. Literature review

Remoteness matters—but ICTs can help bridge the gaps

Economic geography poses enormous development challenges for most Pacific island countries.[2] Small size prevents these countries from taking advantage of economies of scale and specialisation. Remoteness from economic centres hinders them from participating in production networks that have benefitted other developing countries. Furthermore, their sea-locked status restricts these countries from sharing in and benefitting from the flow of goods, capital, people and ideas with other countries. [3]

Although many of the factors that contribute to size and remoteness are beyond the control of policy makers in Pacific island countries, the widespread adoption of information communication technologies (ICTs) may help to lower the inherent disadvantages posed by economic geography. ICTs include a range of modailities that facilitate communication, processing and transmission of information by electronic means. Such technologies encompass both traditional ones such as conventional radio, landline telephones, newspapers, TV and libraries, and new ones such as mobile phones, computers and the internet and fax.[4]

ICTs have the potential for lowering transaction costs among the fragmented population of the Pacific islands, reducing economic distance to the nearest market, and alleviating divisions that currently hinder integration at global, regional and local levels.[5] ICTs can also play a catalytic role towards achieving the Millennium Development Goals (MDGs) by empowering people and promoting grass-root development to take place, enabling people to learn about their world and take action to find answers to overcome their own challenges. For instance, ICTs can help meet hospital and school-related connectivity targets in the MDGs and increase awareness on how to improve the environment and work towards overcoming barriers to gender equality.[6]

ICT use has been slow to grow in the Pacific—but things are changing

Pacific island countries have been relatively slow to respond to and benefit from the global revolution in ICTs. The UNCTAD's *Information Economy Report 2009* reports that between 2003 and 2009 there were over 4 billion mobile telephony subscribers in the world. The most dynamic countries in terms of increased mobile telecommunication rates were those outside of the 'developed' world; now, approximately every second person in the 'developing' world owns or has access to a mobile phone.[7] However, until recently, the spread of ICTs in developing countries in the Pacific has been limited by high capital and operating costs, small size of

---

2. The World Development Report 2009 defines economic geography as 'density', 'divergence' and 'division'. (see: World Bank (2009). *World Development Report 2009: Reshaping Economic Geography*. Washington DC: World Bank.)

3. Horscroft, V. (2010). The Role of Information and Communications Technology in Mitigating the Challenges of Economic Geography in the Pacific Islands. *An Eye on East Asia and Pacific.* Washington DC: World Bank.

4. Fourie, L. (2008) *Enhancing the Livelihoods of the Rural Poor through ICT: A South Africa Country Report.* Working Paper No.13, InfoDev.

5. Horscroft, V. (2010). The Role of Information and Communications Technology in Mitigating the Challenges of Economic Geography in the Pacific Islands. *An Eye on East Asia and Pacific.* Washington DC: World Bank.

6. ITU (2010). *Report on the World Summit on Information Society Stocktaking 2010: Tracking Progress.* Geneva: International Telecommunications Union.

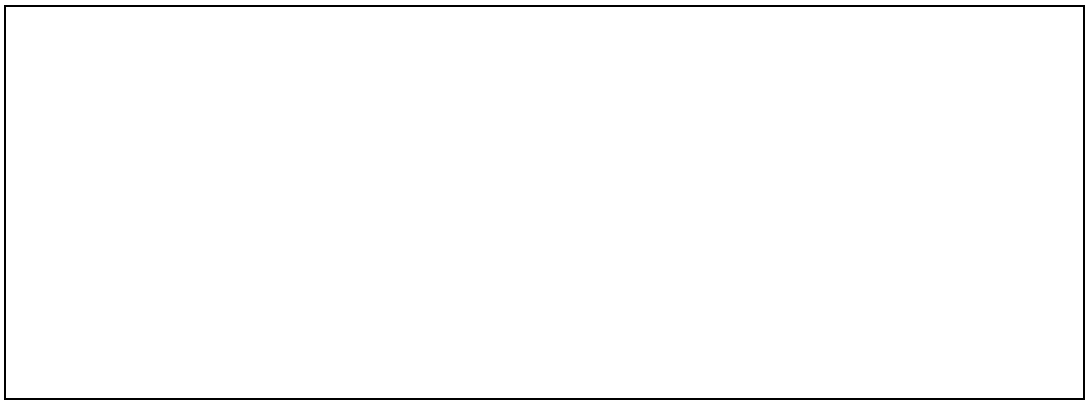
7. UNCTAD (2009). *The Information Economy Report 2009: Trends and Outlook in Turbulent Times*. United Nations Conference on Trade and Development, New York and Geneva.

markets, and government-supported monopolies with little incentive to reduce prices and expand coverage.

Things are beginning to change. The recent dramatic fall in unit costs of mobile telephony infrastructure has not only made mobile phones more accessible and affordable, but also raised questions about the policy rationale for monopolies. Many Pacific island countries have privatised or are in the process of privatising, liberalising and introducing competition in the telecommunications sector, with the aim of making services more accessible and affordable.[8]

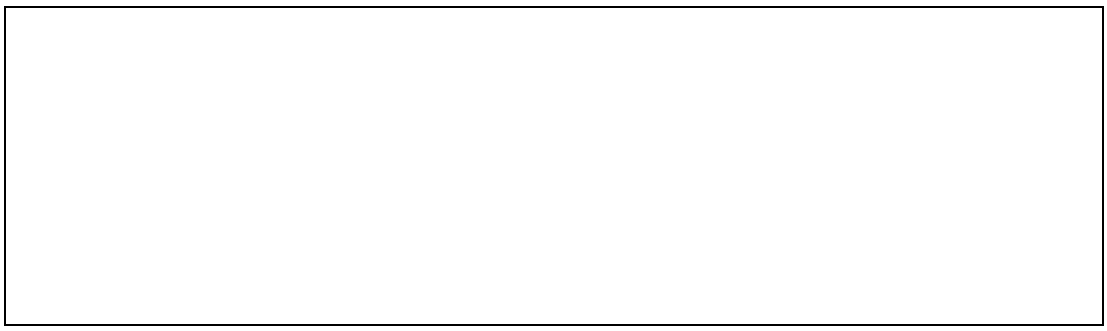
There are now dramatic differences in access to mobile phones and teledensity between those Pacific island countries that have liberalised and privatised the sector and those that have yet to do so, as shown in Figures 1 and 2 below. This is because, as shown in many developing countries, when reforms in the telecommunications sector lead to more accessible and affordable services, even those people at the 'bottom of the pyramid' in a socio-economic sense are willing to spend large fractions of disposable income on mobile phone use, and to experiment with cheap ways of communicating.[9] [10]

Figure 1. Teledensity in Pacific island countries



Source: Horscroft, V. (2010) The Role of Information and Communications Technology in Mitigating the Challenges of Economic Geography in the Pacific Islands. *An Eye on East Asia and Pacific*, World Bank.

Figure 2. Mobile subscriptions in Pacific island countries



8. Horscroft, V. (2010). The Role of Information and Communications Technology in Mitigating the Challenges of Economic Geography in the Pacific Islands. *An Eye on East Asia and Pacific.* Washington DC: World Bank.

9. Zainudeen, A. et al. (2008) Telecom Use in a Shoestring: strategic use of telecom services by the financially constrained in South Asia. LIRNEasia. http://lirneasia.net/projects/2004-05/strategies-of-the-poor-telephone-usage/.

10. Spence, R. and M. Smith (2009) *Information Communication Technology, Human Development Report and Poverty Reduction*. Background Paper for the Harvard Forum, IDRC.

Source: Horscroft, V. (2010) The Role of Information and Communications Technology in Mitigating the Challenges of Economic Geography in the Pacific Islands. *An Eye on East Asia and Pacific*, World Bank.

As Figures 1 and 2 above illustrate, since the liberalisation of the telecommunications sector in Vanuatu and the entry of Digicel, mobile subscription rates increased dramatically from 4.8 per cent of total inhabitants in 2004 to 52.7 per cent in 2009. Data from the telecommunications regulator for 2010 indicate that subscription rates are now as high as 71 per cent. [11] Fierce competition between Digicel and TVL, the two service providers, has meant that access to telecommunication services has expanded rapidly and the costs of using them have significantly decreased. Within six months of starting operations, Digicel had covered 75 per cent of the population, increasing to 85 per cent within 18 months. TVL has also been expanding its coverage, including in areas that are currently not covered by Digicel such as in the remote island of Motalava in January 2010; North East Malekula, Gaua and Maewo in May 2010;[12] and north and east Penetcost in August 2010.[13] Vanuatu's independent telecommunications regulator has confirmed that approximately 90 per cent of the population now have access to mobile telecommunications.

The Pacific Institute of Public Policy's 2009 study on the social and economic impact of telecommunications in Vanuatu found that the majority of respondents who participated in the household survey not only had access to mobile phones, but actually have exclusive use of them. This suggests that more than half of the population of the country owns mobile telephones—a higher proportion than that found in other developing countries. For instance, cross-country research carried out in Pakistan, India, Sri Lanka, Philippines and Thailand indicates that inequality in access to mobile telephony has reduced considerably in more liberalised, competitive markets. Even cash-strapped users find innovative ways of accessing telecommunications without spending considerable amounts to do so. However, there are still disparities in these countries between those who use telecom devices and those who actually own them.[14]

Work is being done to make mobiles even more useful

The evidence of high mobile uptake in Vanuatu is promising, but there are still constraints on the usefulness and true accessibility of this technology. Recognising this, Digicel and TVL have taken some measures, albeit limited, to address the broader constraints that users face in accessing mobile telephony at their convenience. For instance, TVL is collaborating with 'Activ' (an NGO specialising in renewable energy) and AusAID's 'Lighting Vanuatu' project to sell affordable solar lamps and phone chargers to rural users without access to electricity.[15]

In addition, the telecommunication service providers, donors, and banks in Vanuatu are working alongside one another to introduce 'branchless banking' in rural areas. Vanuatu is keen to draw on lessons from other countries that are providing services such as mobile payment platforms, originating loans, and offering a range of other banking products. As shown in Figure 3 below, evidence from other countries suggests mobile or branchless banking can reach large numbers of previously unbanked customers relatively quickly. On average, branchless banking is 50 per cent cheaper if customers use it as a form of savings and bill payment. Service providers in

11. Telecommunication and Radiocommunication Regulator. (2010) *Annual Report 2010.* Port Vila, Vanuatu. www.trr.vu

12. 'TVL Connects Gaua with Smile', *Vanuatu Daily Post*, May 17, 2010. www.dailypost.vu

13. 'TVL Coverage Expanding in Pentecost', *Vanuatu Daily Post*. www.dailypost.vu

14. De Silva, H. & Zainuden, A. (2007). *Poverty Reduction through Telecom Access at the Bottom of the Pyramid.* Paper prepared for Centre for Poverty Analysis Annual Symposium on Poverty Research in Sri Lanka. www.lirneasia.net/wp-content/uploads/2007/04/lirneasia_teleuse_cepa_-mar07_v30.pdf

15. 'TVL Makes Communication Accessible', *Vanuatu Daily Post*. www.dailypost.vu

mature markets such as Kenya and Brazil are linking new products such as loans and insurance to basic electronic wallets or prepaid cards.[16]

Figure 3. Percentage of branchless banking customers who were previously unbanked

Source: McKay, C. and M. Pikens (2010) 'Branchless Banking in 2010: Who's Served? At What Price? What's Next?, *Focus Note No. 66*, CGCAP.

Internet use still lags behind

In comparison to progress made in the uptake of mobile telephony, use of the internet remains limited. As Figure 1 shows, during the same period that Vanuatu experienced an explosion of mobile telephone subscribers, internet use increased from a very low base (from 3.5 per cent of total inhabitants in 2004 to 7.1 per cent in 2009), but usage is still low.[17]

In many ways, the slow rate of internet uptake in Vanuatu is symptomatic of a global digital divide between rich and poor—which is manifest not only within countries, but also between them. The UNCTAD's *Information Economy 2009* report points out that there were an estimated 1.4 billion internet users in 2009.[18] New users grew five times faster in developing countries than they did in the developed world. Nevertheless, while half the population in the developed world is now online, the corresponding proportions for developing and transition economies are only 15-16 per cent. Out of an estimated 400 million fixed broadband subscribers in the world at the end of 2008, average penetration rates were eight times higher in developed countries than their counterparts in developing and transition economies. Broadband prices are the highest in low-income countries. Many such countries are now considering wireless technologies to overcome the broadband access gap.

A 'systems approach' may help bridge the digital divide in internet access

Research in other developing countries suggests that there are more hurdles to bridging the 'digital divide' in internet use than there is in mobile telephony. Drawing on data from 26 developing and developed countries from 1995 to 2005, researchers from the Center for Research on Information Technology have found that diffusion of the internet and of personal computers (PCs) are complementary in nature; thus, one of the main reasons for the slow pace

16. McKay, C. and M. Pikens (2010). *Branchless Banking in 2010: Who's Served? At What Price? What's Next?* Focus Note No. 66, CGCAP.

17. Also see: '85% Mobile Coverage Confirmed', *Vanuatu Daily Post*, December 8, 2009.

18. United Nations Conference on Trade and Development (2009). *Information Economy Report: Trends and Outlook in Turbulent Times.* www.unctad.org/en/docs/ier2009_en.pdf

of internet uptake in developing countries is lack of access to PCs.[19] Accordingly, these researchers suggest that it is important for developing countries to adopt a 'systems' approach rather than promote access to the internet and PCs in isolation. Low-cost systems that combine provision of hardware with web access and user-friendly applications are the way forward. In addition, UNCTAD recommends implementing policies and regulations to facilitate broadband roll out, including tax and financial incentives, market liberalisation, stipulation of universal access, and market stimulation.

UNCTAD also suggests that public internet access points or tele-centres can be particularly effective in enhancing broadband access. For instance, in a study carried out on patterns of use and perceptions towards ICTs in South Africa, respondents cited the lack of capacity, infrastructure, and education as the most important reasons for not using the internet and e-mail on a regular basis.[20] To try to overcome these barriers, the government of South Africa, in partnership with donors, has now invested in 'multi-purpose community centres' (MPCCs) to train and encourage citizens to use ICTs. Some of the major services offered by MPCCs include telephones (mobile or public), computer training, typing, referrals, and internet access. In addition, 'Public Information Centers' (PICs) have been set up to make e-governance and e-commerce more accessible to citizens. Over 700 PICs have been installed in post offices throughout the country with infrastructure and online facilities. PICs allow individuals and communities from disadvantaged backgrounds to more easily access information about the government, schools, agriculture, and markets. The post offices install, support, and maintain the machines. The government, in turn, appoints ICT specialists to assist the post offices that have installed PICs.

Vanuatu is taking steps to increase ICT access

While this type of service innovation has yet to be experimented with in Vanuatu, and would currently be difficult to implement in a context of limited electricity supplies (especially in remote rural areas), the Vanuatu government has already shown strong support for increasing access to ICTs. For instance, under the provisions of the Telecommunication Regulation Act No.30, 2009, the government has required the country's telecommunication regulator to ensure nationwide access to high-speed internet and international links to voice and internet via submarine cables during the course of his initial three-year term.

In addition, in April 2009 the Council of Ministers approved a 'Universal Access Policy' (UAP) to expand access to mobile telephony and internet in areas where telecommunication service providers cannot justify investment due to low numbers of customers. These expansions in access are to be financed by a combination of non refundable grants from donor agencies (including AusAID, which has already contributed 250 million vatu), 4 per cent of the income earned by the telecommunication operators, and any surplus from the 2.25 per cent mark-up charged to operators by the telecommunication service providers.

Of the 350 million vatu in the UAP fund, 100 million vatu is currently being invested alongside the Energy Unit to provide pilot power and internet programmes in rural communities. These include two health centres in North Ambrymn and South West Bay, Malekula; two high schools in Malinissi in Pentecost and Rensari in Malekula; and computer training and cyber security systems. Once the pilot scheme is assessed, the government will invite tenders to provide internet in numerous rural sites where it is not yet accessible. The government has already issued operational licences to eight companies planning to introduce internet services, and is considering a tender for the provision of a submarine cable for inter-island and international linkages.

---

19. Dewan, S., Ganley, D. & Kraemer, K (2009) Complementarities in the Diffusion of Personal Computers and the Inernet: Implications for the Global Digital Divide. *Information Systems Research*, pp.1-17.

20. Fourie, L. (2008) *Enhancing the Livelihoods of the Rural Poor through ICT: A South Africa Country Report.* Working Paper No.13, InfoDev. Refer to page Annex 28 and 29 on research findings.

Such initiatives address one key element of the 'systems' approach recommended by UNCTAD: access to internet services. But the hardware element also needs further consideration. Given the high unit cost of PCs, and great difficulty of operating them in areas without reliable and affordable electricity, alternative tools such as mobile phones with internet capability (which are less costly and less energy-intensive) may be a more viable option. Where community computing facilities with laptops or PCs are provided, these may need to operate on a limited bandwidth, and for restricted hours (as has been done successfully in a small number of centres thus far). In addition, the types of internet services that can be affordably accessed need to be considered. Initially, these are likely to include communication modes such as email and social media sites (e.g. Facebook) that do not require real-time interactions (in contrast to, say, live chatrooms), and low-bandwidth resources such as Wikipedia and other simple web sites (in contrast to, say, video streaming). Experience suggests that these types of services can be offered for an approximate cost of 100 vatu per hour, making them affordable for occasional use, and good candidates for proliferation through mobile internet technology.[21]

Evidence of the benefits of increased ICT access is still being assessed

What will this expanding access to ICTs mean for Vanuatu? Evidence of the benefits of ICT use is still scarce, but earlier studies by the Pacific Institute of Public Policy (in 2008 and 2009) [22] indicate that people throughout Vanuatu perceive increased mobile telephony to be reducing their household vulnerability, helping in the maintenance of social relationships, and lowering household costs. Although urban residents appear to have been benefiting more from mobile phone use thus far, both urban and rural populations have indicated that telecommunications are becoming essential for business, and have both decreased business costs and increased business opportunities. These benefits, in turn, may contribute to increases in productivity that offset the costs of investing in handsets and paying for mobile calls and text messages.

Evidence from other Pacific island countries that have opened their telecommunications sector for competition also suggests that ICTs have been accelerators of economic growth. For instance, the treasury department in Papua New Guinea estimated that competition in the telecommunications sector contributed to 0.7 per cent of GDP in 2008. The overall growth rate was 6.6 per cent during that year. In 2009, an estimated 30,000 people in PNG earned better incomes working as affiliated Digicel sales representatives (e.g. selling pre-paid cards, but not as direct employees of Digicel) than they had previously been able to earn in other employment. Across the region, Digicel now employs approximately 900 people.[23]

Despite these promising indications, it is clear that more information is needed before drawing strongly optimistic conclusions about the impact of ICTs. For instance, the benefits of improved ICT access may be constrained by shortfalls in other infrastructure. Lack of access to electricity, and poor inter- and intra-island transportation, may be limiting the positive impacts of ICT expansion in many Pacific island countries. Furthermore, the experience of island nations such as Vanuatu may be quite different to that of developing countries in Asia and Africa, where large population bases and a wider array of market opportunities form an environment in which increased ICT access can be at its most catalytic. ICT-related economic growth may follow a different trajectory in small, remote island nations, and positive impacts on health and education services may be even more important.

Accordingly, this year's study by the Pacific Institute of Public Policy sheds some important light in an area where much is still unknown. In particular, by providing a follow-on from earlier

---

21. Information kindly provided by Dan McGarry, an experienced ICT advisor in Vanuatu.

22. Detailed information on the 2008 and 2009 studies can be found in: Sijapati-Basnett, B. (2008, 2009) *Social and Economic Impact of Introducing Telecommunications Throughout Vanuatu: Research Findings Report*. Pacific Institute of Public Policy. Both reports available at: www.pacificpolicy.org

23. King, S. *Connecting People to Telecommunications: The Pacific Telecommunication Revolution.* Island Business, Fiji. www.islandsbusiness.com

investigations in 2008 and 2009, and by investigating new areas such as complementary infrastructure and internet use, this study helps to better illustrate Vanuatu's unique story of telecommunications proliferation and its associated developments. Further monitoring of these developments over the coming years—with a particular focus on internet availability and use—would help to ensure that important community changes can continue to be monitored, and the impact of policy interventions assessed.

2. Methodology

The 2011 research design was based on the two previous studies on telecommunications impacts conducted by the Pacific Institute of Public Policy in 2008 and 2009. These studies both involved mixed method approaches, with a combination of quantitative household surveys and qualitative focus groups and interviews. The 2011 design was similar: data was collected from approximately1,200 household surveys and nearly 100 focus groups and semi-structured interviews.

Conceptual framework and research design

The intention of the 2011 study was to add to the 2008 and 2009 findings by further exploring the ongoing impacts of mobile telephone access in a wider range of sites, as well as investigating complementary infrastructure constraints including perceptions on internet access and use. Accordingly, modifications were made to the 2009 design to expand the number of research sites to include thirteen rural and three urban locations across eight islands, to ask additional questions in the household surveys, and to shift the focus of the interviews and focus groups towards greater discussion of parallel infrastructure. In this section, we explain the 2011 research design in greater detail, first discussing the overarching framework, and then focussing in turn on the survey (quantitative) and interview/focus group (qualitative) study components.

The design of our 2011 study was guided by a model, originally developed by DFID,[24] for studying the socio-economic impact of telecommunications through a 'sustainable livelihoods' lens. The Pacific Institute of Public Policy (PiPP) adapted this model for use in its 2008 and 2009 studies on telecommunications in Vanuatu. A more detailed discussion of the original DFID model, and PiPP's adaptations, can be found in the 2008 report.[25]

A key characteristic of the sustainable livelihoods approach is that it views life as multi-dimensional and comprised of interdependent *human*, *financial*, *social* and *physical* needs. Rather than taking a narrow, income-based perspective, this approach views livelihoods as consisting of the combination of capabilities, material and social assets, and activities that people need to live. It measures sustainability in terms of people's ability to recover from shocks and maintain their standard of living without depleting their resource base.

In practical terms, adopting the sustainable livelihoods framework for our study has meant taking a mixed method approach to gather a very broad array of data on how people's lives have been impacted by telecommunications. This year, we have also looked more broadly at the quality and importance of other infrastructure services that moderate the influence of telecommunications, to place our findings in a broader economic and social context. In addition, we have acknowledged the constantly developing technological landscape by broadening our investigation to include the internet. These two areas of investigation were not included in the earlier (2008 and 2009) studies.

---

24. Souter, D., N. Scott et al. (2005) *The Economic Impact of Telecommunications on Rural Livelihoods and Poverty Reduction: A Study of Rural Communities in India (Gujurat), Mozambique and Tanzania, Commonwealth Telecommunications Organisation*. Available for free download at: www.cto.int

25. Basnett, B. (2008) Social and Economic Impact of Introducing Telecommunications Throughout Vanuatu, Research Findings Report. Pacific Institute of Public Policy. Available for free download at: www.pacificpolicy.org

As with the 2008 and 2009 studies, our research design this year incorporated both qualitative and quantitative research methods. We used a detailed household survey to collect quantifiable measures of the social and economic impacts of telecommunications and internet, including patterns of access, ownership, use, and cost. We also undertook focus groups with community members, and semi-structured interviews with small and medium business owners to gather more in-depth qualitative data on perceived impacts and importance of telecommunications and complementary infrastructure. In particular, the focus groups enabled us to collect views and experiences from a cross-section of individuals from the social and business enterprise sectors, and to better understand how these individuals perceived the access and use of community infrastructure impacting on the sectors differently. As in the 2008 and 2009 studies, the semi-structured interviews continued to explore the role of telecommunications for small to medium business expansion using a value chain analysis approach for questioning. This approach helped to identify barriers to business enterprises at different product (product origin and location) stages, and to provide more details on the socio-economic context in which businesses operate. In contrast to the 2008 and 2009 studies, which used only four business interviews to construct in-depth case studies, this year we aimed to interview one male-led and one female-led business in each of the sixteen sites. We did this to better enable us to detect any gender differences in perspectives on business transactions, and to gather information from a range of varying business contexts and telecommunication experiences across both rural and urban sites.

Study locations

The household survey, focus groups, and interviews were carried out on eight islands and in sixteen research sites, which are listed in Table 1 below. These sites included all twelve locations included in the 2009 study, with the addition of four further rural sites: Sola and Vetumboso in Vanua Lava (in the far north of Vanuatu), and Anelghowhat (Anelcauhat) and Umej in Aneityum (in the far south of Vanuatu).[26] We decided to include these new sites in the study because they have only recently gained access to mobile telephone networks, but only have limited coverage.[27] Accordingly, they provide good case studies of locations where access to telecommunications is available, but constrained. The inclusion of these remote areas enables a better understanding of different experiences of mobile access and lifestyle across Vanuatu: across the sixteen research sites, we were able to assess both urban and village settings with a broad range of service coverage conditions.

Study participants

Household survey

As shown in Table 1, a total of 1,197 respondents completed the household survey in 2011—significantly more than in previous studies (in 2008 and 2009). The sample was weighted more towards the rural population of Vanuatu, collecting data from 767 respondents across 13 rural villages, and 430 respondents across 3 urban areas (equivalent in population size to villages).

---

26. Detailed information on the site selection methodology for the 2008 and 2009 studies can be found in: Sijapati-Basnett, B. (2008, 2009) Social and Economic Impact of Introducing Telecommunications Throughout Vanuatu: Research Findings Report. Pacific Institute of Public Policy. Both reports available at: www.pacificpolicy.org

27. Digicel extended access to Sola in Torba province in late 2010, to compete alongside Telecom Vanuatu Limited (TVL) who had been sole operators in Sola since 2009. The village of Vetumboso and neighbouring areas can only access Digicel coverage from the periphery of the nearby towers. People have to walk for approximately two hours to obtain adequate service coverage. Neither Sola nor Vetumboso have access to TVL fixed lines. The far south island of Aneityum only started accessing TVL mobile coverage in November 2009, though it had accessed fixed lines much earlier. TVL mobile coverage is reasonably good in Analgohat, but not in Umej.

Table 1. Number and proportion of respondents - by survey location

Survey location	Number of respondents	Percentage of total sample
Blacksands	227	19.0%
Chapuis East	117	9.8%
Freswota 1	86	7.2%
URBAN	430	35.9%
Anelghowhat	80	6.7%
Atabulu / Atangurua	65	5.4%
Isini	66	5.5%
Lamen Bay	63	5.3%
Lamnatu	65	5.4%
Levetlis	30	2.5%
Ngala	58	4.8%
Port Narvin	54	4.5%
Port Olry	47	3.9%
Sola	63	5.3%
Umej	34	2.8%
Unpongkor	64	5.3%
Vetumboso	78	6.5%
RURAL	767	64.1%
Total	1197	100.0%

We targeted the survey to adult male and female members of the community who were *'heads of household or spouses of heads of household'* over eighteen years, and who had adequate knowledge about day to day household and business transactions and were able to provide reliable responses to the questions. In most cases (52.7 per cent), the head of the household responded to the survey. A further 32.3 per cent of the surveys were completed by the head of household's spouse. Generally, these respondent roles followed 'traditional' gender patterns: 90.6 per cent of the head of households were men, and 93.9 per cent of the spouses were women. Other respondents included the head of household's daughter or son, or other relatives living in the household. The median household size was 4 people: 2 adults and 2 children. However, households ranged in composition from 1 to 15 adults and 0 to 12 children.

The average age of respondents was 36 (SD = 13), covering a range from 18 to 100. As shown in Table 2 below, urban areas had a significantly higher proportion of respondents aged under 25 (31.2 per cent) than did rural areas (11.4 per cent).

Table 2. Proportion of respondents in each survey location in different age groups

Survey location	Under 25	25 -35	36 - 50	51-70	Over 70
Blacksands	31.3%	38.3%	22.5%	7.9%	0.0%
Chapuis East	25.9%	39.7%	26.7%	6.9%	0.9%
Freswota 1	38.4%	43.0%	14.0%	3.5%	1.2%
URBAN	31.2%	39.6%	21.9%	6.8%	0.5%
Anelghowhat	7.9%	35.5%	31.6%	23.7%	1.3%
Atabulu/ Atangurua	3.1%	26.6%	35.9%	26.6%	7.8%
Isini	13.6%	24.2%	47.0%	15.2%	0.0%
Lamen Bay	27.0%	25.4%	28.6%	19.0%	0.0%
Lamnatu	7.8%	46.9%	39.1%	3.1%	3.1%
Levetlis	26.7%	36.7%	16.7%	13.3%	6.7%
Ngala	15.5%	36.2%	25.9%	22.4%	0.0%
Port Narvin	3.8%	43.4%	41.5%	11.3%	0.0%
Port Olry	10.6%	38.3%	38.3%	10.6%	2.1%
Sola	4.9%	36.1%	45.9%	13.1%	0.0%
Umej	25.8%	35.5%	25.8%	12.9%	0.0%
Unpongkor	7.8%	21.9%	37.5%	29.7%	3.1%
Vetumboso	9.0%	34.6%	38.5%	17.9%	0.0%
RURAL	11.4%	33.5%	35.9%	17.5%	1.7%
Total (overall sample)	18.6%	35.7%	30.8%	13.6%	1.3%

Most respondents had only a primary school education (50.5 per cent), or a secondary school education (38.2 per cent). Education levels differed significantly across survey locations, with proportionally more urban respondents (54.5 per cent) having a secondary education compared to rural respondents (29.2 per cent). Table 3 below provides a breakdown of education levels by survey location.

Table 3. Proportion of respondents in each survey location by highest level of education

Survey location	No formal	Primary	Secondary	Tertiary	Technical / Training
Blacksands	4.4%	42.5%	45.1%	4.9%	3.1%

Chapuis East	1.7%	30.8%	67.5%	0.0%	0.0%
Freswota 1	1.2%	24.4%	61.6%	9.3%	3.5%
URBAN	3.0%	35.7%	54.5%	4.4%	2.3%
Anelghowhat	2.5%	50.0%	43.8%	2.5%	1.3%
Atabulu / Atangurua	15.4%	64.6%	18.5%	0.0%	1.5%
Isini	10.6%	39.4%	37.9%	4.5%	7.6%
Lamen Bay	1.6%	42.9%	42.9%	12.7%	0.0%
Lamnatu	24.6%	52.3%	20.0%	0.0%	3.1%
Levetlis	10.0%	53.3%	36.7%	0.0%	0.0%
Ngala	0.0%	75.9%	22.4%	0.0%	1.7%
Port Narvin	1.9%	77.4%	20.8%	0.0%	0.0%
Port Olry	10.9%	47.8%	39.1%	2.2%	0.0%
Sola	3.2%	47.6%	33.3%	12.7%	3.2%
Umej	2.9%	61.8%	35.3%	0.0%	0.0%
Unpongkor	1.6%	68.8%	28.1%	1.6%	0.0%
Vetumboso	6.4%	83.3%	9.0%	1.3%	0.0%
RURAL	7.1%	59.1%	29.2%	3.1%	1.6%
Total (overall sample)	5.6%	50.7%	38.3%	3.6%	1.8%

Focus groups and interviews

We were able to complete a total of 16 female and 15 male focus groups, 13 female and 18 male semi-structured business interviews across the sixteen research communities. This is broken down in Table 4 (below).

Table 4. Number of focus groups and interviews by gender and survey location

Survey location	Focus groups		Business interviews	
	Male	Female	Male	Female
Blacksands	1	1	1	1
Chapuis East	1	1	1	0
Freswota 1	1	1	2	0
URBAN	3	3	4	1

Anelghowhat	1	1	1	1
Atabulu / Atangurua	1	1	2	0
Isini	1	1	1	1
Lamen Bay	1	1	1	1
Lamnatu	1	1	1	1
Levetlis	1	1	1	1
Ngala	1	1	1	1
Port Narvin	1	1	1	1
Port Olry	0	1	1	1
Sola	1	1	1	1
Umej	1	1	1	1
Unpongkor	1	1	1	1
Vetumboso	1	1	1	1
RURAL	12	13	14	12
Total	15	16	18	13
Overall total	31		31	

We aimed to conduct 32 focus group discussions: one male and one female group in each of the sixteen locations. At completion, we missed this target only by one. We were unable to collect a group of men together in Port Olry due to the very busy schedules of the men in that area (at the coconut plantation and in copra production) and village preparations for the official opening of the sealed highway between Luganville and Port Olry, funded by the Millennium Challenge Account-Vanuatu (a Millennium Challenge Corporation compact).

In most cases, our focus group comprised around four or five participants. To better ascertain perceived benefits and changes resulting from the increased proliferation of mobile telephony to other business and service sectors, we invited participants in each area from a range of different sectors (e.g. from the government, household, business, civil society and youth). We tried to ensure cross-sectoral representation in all groups, but in some cases certain sectors were better represented (e.g. more housewives than business women were available for daytime focus groups).

As with the focus groups, for the semi-structured interviews we aimed to complete a total of 32 interviews, with one male and one female business representative in each of the 16 locations. We achieved a gender balance close to this ideal, but were unable to secure female interviews in two urban areas and one rural area. Our interview participants were all small to medium business owners or representatives of retail operations (such as trade stores, fuel suppliers, fish sales, clothing manufacture and sale); motor vehicle repair workshops; tourism and hospitality (such as guesthouse and tourist stalls); copra and peanut productions and sale; fisheries; cattle farming; artefact and handicrafts; and ready-kava mix producers and sellers.

Study materials

Household survey

The household survey comprised 77 questions, broken down into six content-related sections. On average, the whole survey took 50 minutes to an hour to complete. This survey was notably longer than the one used in 2009, as it included three new sections with 38 questions on complementary infrastructure, internet and political views. Below, we provide a brief overview of each of the survey sections, and a description of any changes made from the 2009 survey.

Household

The first eleven survey questions asked about basic participant demographic and household characteristics: age, gender, relationship to head of household, level of education achieved, literacy, household memberships, dependency and support and distant family and material support.

These questions were the same as those used in 2008 and 2009, with only slight structural adjustments made to improve content (flow and clarity) and order of the sets of questions. However, a question about participant names was omitted as we deemed it unnecessary to obtain respondents' identity, and wanted to ensure the survey's confidentiality.

Questions 3, 6 and 7 (12, 18 and 19 in 2009) about relationship to head of household, total household membership, and number of members who depended upon and/or supported the household are key household questions. These were revised to improve flow, linkages and clarity between the questions and their responses. The main revision to question 12 (2009) was in the set of available responses. This revision mainly involved adjusting the wording of the set of responses for the question-how many of your household members 'depend or support *'you'* (2009) was altered to *'your household'* so that the responses were consistent and flowed well with this question as well with the earlier questions that asked about total '*household*' members. In other words, the total sum of household members depending on and supporting should equal the sum of total household members in the earlier question. In the initial studies, it was noted that when enumerators asked how many support/depend on *you,* rather than *your household* this automatically excluded those respondents who were not always the head of households, (e.g. wives or other spouses) and who were either only *'depending or supporting household'* in the corresponding count. The effect of this was seen in the uneven sum of the total household members with this and the former question.

Economics

The next survey section (questions 12-29) asked about the types of work for households and their monthly income; complementary infrastructure services that households access and use (such as roads, wharves, shipping and electricity); perceived social and economic changes in the last two years; and participation of respondents in community self-help groups, including the size and aim of, and means of communication used such groups.

The specific question on household economics was separated (into parts A and B) and asked about the different types of work that the households were engaged in and their monthly household income.

The specific questions on service (complementary services) looked at the types of transport (truck/bus, bicycle, motorbike, boats) the household owned and their costs (e.g. of fuel) including roads and types of roads in their areas. In addition to questions on ownership of transport, were questions on access and cost of shipping, electricity and telecommunication (coverage) services to households' social and economic lives, and finally were those about household social and economic changes in the last two years and participation by respondents in self-help groups or organisations in the community, including the size aims and objectives of such groups and their common means of communication.

The major changes to this section this year have been the addition of eight new questions on complementary infrastructure services. The remaining questions were the taken from the 2008 and 2009 surveys. The new questions were added to capture the key findings and

recommendation of the 2009 study, which identified complementary infrastructure as posing challenges (such as lack of proper access to and cost of electricity, lack of full mobile coverage, and transport limitations) to the full utilisation of mobile phones. Accordingly, it was relevant that the key parallel infrastructure to phones were explored in more detail in this year's study.

Former questions on property ownership (question numbers 29, 31, 33 and 34 in the 2008 and 2009 surveys) were omitted, as they were deemed less important for this year's study.

General communication means and preferences

Two questions (30 and 31) asked about the common forms of communication and their importance and how people used these different types to communicate for business, social, emergency, government service delivery, non-government organisation and weather related activities. There was no addition or subtraction of questions in this section compared to previous years.

Access, use and cost of telecommunications

The twenty questions (32-51) on access, use and cost of telecommunications had questions further sub-divided by access and use in the last two years, current use and frequency of use and cost of using phones.

The first five questions (32-35) asked about types of phones accessed and frequency and patterns of phone use in the last two years, current household access, and number of household members owning phones and the last time household member first owned a phone.

The next fifteen questions (37-51) covered the respondent's current phone ownership and use; means of obtaining a phone; purchase cost, brands of phone and types of SIM cards (service providers) used; frequency of phone use; alternatives to using a mobile phone if not a phone owner; source of electricity used to charge mobile phone, cost per charge and distance travelled to charge and the related cost and total (overall) cost of phones (mobile, private and public fixed lines); and frequency of phone use for businesses, social (health and education) and emergency related activities.

There were ten new questions added to this section this year (compared to the 2009 survey), primarily focussed on phone charging and cost of charging.

Impact of phones

Section five comprised important questions (52-58) on impact. This section asked questions specifically about the benefits of phones in a range of business and social livelihood areas; the impact on business (economic activities) if phones were not used; if the use of other forms of communication changed with use of phones and options; and reasons for not owning and or using a phone in future.

Questions on the negative social effects of phones were also asked, and covered social issues that were potentially affected by phones such as young people, education, marital relationships, reduction in traditional forms of communication etc.

These questions were largely the same as those used in the 2008 and 2009 studies. The only change to this section was the addition of a new question (55) on the negative social effects of phones, which was not captured in the 2009 survey.

Internet/email access, use and perception

Section six of the survey focussed on the internet. There were a total of fifteen perception questions (59-74) on awareness, knowledge, access to, and use of the internet. This set of questions was entirely new this year, and asked specifically about: if the participant has ever seen and used internet before; the time they had first used internet; normal places of access;

frequency of use; cost of internet; importance of internet; effect if not used; social and negative effects; source of awareness and learning about internet; reasons for not currently using internet; possibilities of use and reasons for not using; ease of using internet; and its benefits.

Opinion Polling

The last section was on polling and contained four questions related to three policy areas in the telecommunications sector in Vanuatu. These perception questions asked about: who was responsible for changes in the telecommunications sector; performance of government in the last two years; and priorities requiring government attention.

Other general modifications to 2009 survey

The changes made to the 2009 survey—such as the additions of new sections and sets of questions on complementary infrastructure in section 2 (Household economics) and section 4 (telecommunications access, use and cost) including section 6 (internet perceptions)—were made following consultation and agreement with the Vanuatu Telecommunications Regulator and AusAID GFG.

In addition to these broader changes, we made some further general revisions and adjustments to the 2009 questions. These revisions were based on review and feedback from the research team (comprised of the 2008-2009 study lead-researcher, the field supervisors, the telecommunications expert and the research manager). The challenges, experiences and lessons learnt in past studies were accommodated to improve the 2011 questionnaire.

The general revisions included slightly revising the content and order of many of the questions to: improve flow, linkages and clarity; enable direct Bislama translations of the content of questions; and, most importantly, to help both the interviewers and their respondents to understand the questions well and prompt/provide accurate responses. Our enumerators and respondents have varying education and literacy levels, which can affect responses if questions are unclear.

The layout of the questionnaire was also revised and had the key contents (sections, questions and interview instructions, their responses, codes and skip instructions) in four columns by *question number*, *questions and filters, coding categories,* and *skips*. Column one contained question numbers which was further coded as either a 2009 and new questions to differentiate between the old (2008 and 2009) and the new questions added in 2011 . The question and filters column contained all the questions and interviewer's response eliciting instructions, whilst the coding categories had the sets of responses and their codes and the skip column had all the skip instructions for the interviewers. In addition to the columns, all our section questions were prefaced with short and clear introductory narratives explaining each new section.

The content of some of the 2009 questions was generally revised without necessarily altering the meaning of the questions. Most adjustments were made to the set of responses to match the question or vice versa. A few complex questions were broken into parts (a & b) to make the question simpler.

Translation

The final accepted English version was translated by an experienced translator from the Vanuatu Cultural Centre and further verified a number of times by the ni-Vanuatu research team members.

Focus groups and interviews

Focus groups

This year's focus group question guide covered four themes and 27 specific questions. The themes and questions focussed on priority community infrastructure; community development;

community constraints; and community communication. The focus group themes and questions were intended to complement the reports on some key household survey questions. They provided further detail on the different contexts, important benefits and constraints of community infrastructure (telecommunications, internet, electricity, shipping and roads) to social life.

Whereas the 2009 focus group questions were related to case studies with very comprehensive focus on individual and household income and expenditure patterns, the 2011 focus group questions had a new focus on complementary infrastructure access and service levels and costs, and how these serve as constraints on the proliferation of mobile phones and on changes in other social and economic sectors.

Interviews

This year's semi-structured interviews were related to small–medium businesses operations and covered specific questions on: the types (focus) of business; the business value chain describing the operation of the business in terms of supply, distribution, quality control, business income and cost; and business communication and stages which often use phones and internet. The questions focussed in this area aimed to explore the changes and impact of telecommunications including complementary infrastructure on growth of small to medium businesses.

Few content-related changes were made to this year's business interview questions on the value chain. That said, minor revisions were made to reduce the level of detail collected, and to move some questions to fit a more logical structure. In addition, questions were added regarding business communication.

Translation

Both the final English versions of the focus group and semi-structured interviews were translated into Bislama in preparation for fieldwork in the research communities.

Study procedure

Sampling design

The selection of the research locations and interview participants was based on the principles of purposive or convenience sampling. This type of sampling procedure was well suited to our aim of selecting research sites with different levels of access to mobile telephony.

In using this type of non-random sampling, we were mindful of the limitations it would have on the representativeness of our results. To improve the representativeness of our results, we aimed to interview approximately 80 per cent of the households in each site. To calculate the projected sample size, we used 2009 national census household data from the Vanuatu National Statistic Office (VNSO). However, in some sites (Ngala, Middle Bush/Lamnatu, Lenakel, Lamen Bay and Atangura/Atabulu) we found that taking 80 per cent of the VNSO local population figures actually resulted in a lower sample size than that obtained in our 2009 study (as shown in the first and second columns of Table 5 below), suggesting some discrepancy in either the official figures or in the land boundaries being used to demarcate each location. Accordingly, we opted to choose the higher figure of either the 2009 survey sample or 80 per cent of the VNSO figure as our modified projected sample size for 2011 (shown in the third column of Table 5).[28]

Overall, we sampled considerably more households this year than in 2009, particularly in rural areas. However, in doing so we exceeded our projected sample size by a small amount—43 surveys, or approximately 1.3 per cent. This over-sampling was likely due to some

28. Exceptions to this approach were made in Blacksands and Port Olry, where we used the VNSO-based sample figure. The reason for this is that we had adjusted the VNSO figure in line with geographical mapping, as explained in the note to Table 5.

miscommunications between survey enumerators, and can be viewed as a limitation in our survey data.

Table 5. Projected and actual survey size and percentages by survey location

Survey locations	Actual survey sample in 2009	Projected sample in 2011 (80% of VNSO area population figure)**	Modified projected sample in 2011	Actual survey sample in 2011
Blacksands (Efate)**	111	222	222	227
Freshwota 1 (Efate)	67	86	86	86
Chapius East (Santo)	95	118	118	117
URBAN	273	426	426	430
Anelghowhat (Aneityum)	-	87	87	80
Atangura/Atabulu (Pentecost)	60	42	60	65
Lenakel/Isini (Tanna)	59	40	59	66
Lamen Bay (Epi)	57	56	57	63
Middle Bush/Lamnatu (Tanna)	62	38	62	65
Levetlis (Pentecost)	19	26	26	30
Ngala (Epi)	53	2	53	58
Port Narvin (Erromango)	50	50	50	47
Port Olry (Santo)**	76	47	47	47
Sola (Vanua Lava)	-	62	62	63
Umej (Aneityum)	-	24	24	34
Unpongkor (Erromango)	58	60	60	64
Vetumboso (Vanua Lava)	-	78	78	78
RURAL	494	612	728	767
TOTAL	767	1,038	1,154	1,197

**Note: The original VNSO figures for Port Olry (255) and Blacksands (943) were disproportionately large compared to most other rural and urban sites, respectively. In order to keep site sample sizes within a comparable range, we carried out geographical mapping in Port Olry and Blacksands, in which we used Google-maps and explorations by foot to redefine the land boundaries used by VNSO to cover a smaller area, and head counted households within that area. In Port Olry, we obtained a headcount of 59 households, from which we selected 47 households (80%) as the sample size. This smaller area in Port Olry covered only sector 1 (not sectors 2-5 in the area), consistent with coverage in the 2008 study. In Blacksands, we counted 278 households, from which we selected 222 (80%) as the sample size. This smaller area within Blacksands covered the land stretching from the right side of the Blacksands road (driving in from North Efate/Mele highway and Blacksands inter-junction) towards the seashore.

Survey field team selection and training

Three survey field teams of two field supervisors (one PiPP officer and one non-PiPP officer) and enumerators covered the 16 research sites. Team A comprised the Research Manager (PiPP officer) and field supervisor leader, and completed field work with 16 enumerators in the northern islands of Santo and Vanua Lava (Torba Province). Team B comprised a PiPP Officer (Communications Officer) and field supervisor leader, and completed field work on the islands of Erromango and Pentecost with 11 enumerators. Team C comprised a PiPP Officer (Research officer) and the qualitative field supervisor and telecommunications expert (only for few days) who led and completed field work with 25 enumerators in the southern islands of Aneityum, Tanna Epi and Efate. The teams commenced fieldwork in mid March and ended in early June 2011.

Selection of field supervisors and enumerators

Prior to commencing fieldwork we selected and trained our field supervisors in Port Vila, who then selected and trained enumerators in each of the local research sites. All of the field

supervisors and the field enumerators were selected on the basis of their high level of experience, knowledge and skills in survey related fieldwork and requisite language skills.

One of the field supervisors had previously performed the same role in the 2008 and 2009 surveys and was experienced. The other supervisor was new, but had been involved in some surveys previously.

A total of 52 enumerators based throughout the sixteen research sites were initially identified through PiPP's network and with the help of the Vanuatu National Statistics Office (VNSO) on Tanna, Efate, Santo and Vanua Lava, Pentecost and Erromango. The enumerators were contacted and informed beforehand about the study, time of fieldwork and when to expect the team leaders arriving from Port Vila. Each site had a contact person who assisted in informing and mobilising the enumerators. A good number of enumerators were involved in these roles in the 2008 and 2009 surveys and the new ones had conducted surveys either with the VNSO or other organisations, and were well prepared and knew what to expect.

Training materials

The training materials were a study training manual and 2011 English and Bislama questionnaire. The manual contained the general background information of the 2008, 2009 and 2011 studies and outlined the key features of this year's questionnaire (number of questions, the 7 sections and 77 questions and what each meant, the response seeking instructions, coding categories and skip instructions). The manual was accompanied by a projected sample size target sheet containing the number of surveys to be achieved at each site, and the main steps to introducing and ending the fieldwork.

Training of field supervisors and enumerators

There were two sets of training conducted before the survey fieldwork. The first training was conducted in Port Vila at PiPP for field supervisors (both the PiPP Officers and non- PiPP officers). All field supervisors went through thorough one-day training, mainly on the content of the questionnaire. Because of the revisions to the questionnaire, the increase in length of the survey, and the different levels of education of enumerators and respondents who would ask and answer the questions, it was important to provide thorough, section-by-section and question-by-question training on the questionnaire (flow, format, context and meaning, skip instructions, importance of the questions). This was made compulsory for the field supervisors, who would then replicate this training for the enumerators. In addition, the supervisors were taken through the general sampling procedure with specific explanation of the sample (survey) targets for each site and the roles, responsibilities and code of conduct for team members.

A second training session was conducted with enumerators by the field supervisors at the research site, usually during the first day after the supervisor's arrival. Detailed explanation and clarification was provided to assist enumerators in understanding the questions at this training. At end of the training the enumerators did a trial survey amongst themselves to calculate the speed, determine the flow and ease of the overall questionnaire, and report any confusing questions or features for improvement. Additionally, a few confusing Bislama translations were identified by the enumerators, which further assisted in fine-tuning the questions in preparation for the interviews commencing the following day.

Survey household interviews

After the training, the household survey interviews took on average 4 days to complete, except for sites with huge survey samples (like Blacksands, which took close to two weeks to complete).

All but one of the surveys (which was conducted in English) was conducted in either Bislama (78 per cent of the total sample) or the relevant local language (22 per cent of the total sample), according to the respondents' preference and level of fluency.

As shown in Table 6 below, almost all respondents in urban areas (99 per cent) elected to use Bislama, while a third of those in rural areas (34 per cent) preferred their local language. These languages comprised: Anejom, Nathura, Kanuu, Nave, Ngunese, Orung, Raga, Sakao, Se or Sye, and Vures.[29] Translations of the survey from Bislama into the local language were made by enumerators (who themselves were locals) during each interview. This may have resulted in some variation in the way certain questions were interpreted and explained to respondents. However, it also enabled respondents to communicate in the language they were most comfortable with (ensuring people were not excluded by reason of language), and was the most viable option for languages that are primarily oral, rather than written. The enumerators were selected for their experience in this type of work, were given training to ensure they had understood the survey (in Bislama) before administering it, and were the best available judges of the equivalence of terms across languages. Thus, we have reasonable confidence in the translations they provided to respondents.

Table 6. Number and proportion of respondents using Bislama and local languages - by location

Survey location	Bislama (#)	Bislama (%)	Local Language (#)	Local Language (%)
Blacksands	223	98.2%	4	1.8%
Chapuis East	116	99.1%	0	0.0%
Freswota 1	86	100.0%	0	0.0%
URBAN	425	98.8%	4	0.9%
Anelghowhat	73	91.3%	7	8.8%
Atabulu / Atangurua	1	1.5%	64	98.5%
Isini	36	54.5%	30	45.5%
Lamen Bay	63	100.0%	0	0.0%
Lamnatu	10	15.4%	55	84.6%
Levetlis	30	100.0%	0	0.0%
Ngala	58	100.0%	0	0.0%

29. Language preferences also varied significantly by age and education level. For instance, the majority (91.4 per cent) of respondents aged under 25 used Bislama, while those in older age groups were more likely to select their local language (ranging from 20 per cent of those aged 25 to 35, to 30 per cent of those aged 51 to 70). Likewise, respondents with secondary or tertiary education were significantly more likely to select Bislama (87 per cent and 95 per cent of each group, respectively) than were those with only primary education (74 per cent), or no formal education (46 per cent).

Port Narvin	34	63.0%	20	37.0%
Port Olry	30	63.8%	17	36.2%
Sola	61	96.8%	2	3.2%
Umej	27	79.4%	7	20.6%
Unpongkor	31	48.4%	33	51.6%
Vetumboso	55	70.5%	22	28.2%
RURAL	509	66.4%	257	33.5%
Total (overall sample)	934	78.0%	261	21.8%

Overall, the survey interviews throughout the sites were successful. There were no reports of refusals or incomplete surveys. All the surveys were checked and dated by the supervisors at the end of interview days

Challenges and limitations

The challenges that enumerators faced in implementing the survey included confusing skip patterns, omissions, and translation discrepancies in a few questions; the length of the survey (which made it difficult to complete many in one day); and differences in understanding among the enumerators. These issues were generally managed well in the field, although they may have limited the accuracy of some findings (we make special note of this in the introduction to our findings on the internet, which are based on a smaller sample size).

We also acknowledge that the survey focussed on collecting adult views. This means that youth voices are not well represented in the findings in this report. It is likely that responses to questions on how phones are used, or where the internet is accessed (amongst others) would have differed significantly if posed to a younger audience.

Qualitative field teams and training fieldwork

The three survey field teams also comprised the qualitative field supervisors. From the two member teams, one of the team members was responsible for completing the qualitative work. For teams A (Santo and Vanua Lava) and B (Erromango and Pentecost), the PiPP officers (Research Manager and Communications Officer) led and undertook the qualitative work. For Team C (Aneityum, Tanna, Epi and Efate) a qualitative field supervisor based in Port Vila was identified and selected to lead and complete the qualitative fieldwork.

Selection of qualitative field supervisors

The qualitative field supervisor was identified using the PiPP network, and selected based on merit and previous work experience in qualitative work.

Qualitative training of field supervisors

The qualitative field supervisors (both PiPP officers and non-PiPP officers) are based in Port Vila. Before the fieldwork all supervisors attended a week long qualitative training jointly organised by the World Bank's *Justice Blo Everiwan* Project and PiPP. The field research supervisors (both

survey and qualitative) learned about qualitative research strategies, methods and techniques and general qualitative research processes and differences between quantitative and qualitative research.

Additionally, these field supervisors participated in the quantitative survey training at Port Vila before travelling out to the research sites. The survey training also included a session on the final English and Bislama focus group and semi-structured interview guides to get all supervisors familiar with the themes and questions.

Fieldwork

The qualitative fieldwork commenced at the same time as the quantitative survey work across the sixteen sites. Most discussions and semi-structured interviews commenced the day following arrival, as soon as meetings and interviews were arranged. Information on: number of participants, the relevant representatives, gender, rough meeting/interview schedules for both the focus groups and semi-structured interviews were provided in advance to the key contact person at the research sites, who had made some prior arrangement or alerted potential participants. The field supervisors had to draw on much needed support from the community to get sufficient numbers of participants. Community members (including village chiefs, churches, NGOs, and government leaders and representatives, and household mothers) assisted with arrangements for the focus groups and to identify the small-medium business owners and representatives.

For the focus groups, the help of a male and female assistant was useful. These assistants mobilised and organised groups of men and women for focus groups and discussions. These assistants identified adult male and female representatives of households, government officials, NGOs, youth groups and businesses in the relevant locations. The assistants further assisted the field supervisors in arranging the meetings including times and venues.

For small to medium business interviews the arrangements were straightforward: the field supervisor (facilitator) only needed to approach the owner at the business venue (e.g. trade store or guest house) to arrange an interview. At times when owners or adult representatives were not present, meetings and appointments were delayed until a more suitable time.

Both the focus group discussions and interviews commenced and ended in a similar pattern. The supervisor first commenced with a brief introduction of the study (objectives and aims). This put the participants at ease and helped to get their attention. Where tape or digital recorders were used, permission was requested before continuing. In all the discussions and interviews, participants and interviewees welcomed the use of recording devices and were pleased to participate.

Generally the focus groups went well, with fairly good representation from the different sectors across the research sites for both the male and female groups. The group discussions normally took more than an hour to complete. In focus groups where the facilitators were unable to contain discussions, it took longer, even two hours. The outcomes of the discussions were either tape recorded or summarised in notebooks and safely kept.

The semi-structured interviews also progressed well, with no records of refusal to participate and good participation from people of both genders. Depending on educational levels of the interviewees, it took almost 50 minutes to an hour to complete a semi-structured business interview. As with the focus groups, notes were written in notebooks or recorded on tapes and digital recorders.

Challenges and limitations

For focus groups, the main challenge was in getting sufficient numbers of adult participants. This was due to busy schedules, and not all representatives turning up at the agreed meeting time and venue for discussions.

We also acknowledge that the focus groups, like the household survey, focussed on collecting adult views. This means that youth voices are not well represented in the findings in this report. An additional study looking specifically at youth experiences could help to address this gap, and shed more light on, for instance, the perceived social issues reported in our section on phone use. For example, many adult respondents felt that phones may have been causing problems amongst youth. However, young people may see this differently, viewing mobile phones as a source of autonomy, or as a means of having more secure and confidential interactions with each other through SMS, without the pressures involved in face-to-face contact. We hope that future studies will be able to explore youth experiences further.

Analytical approach

We analysed the quantitative data from the household surveys using Microsoft Excel and SPSS 18.0 software. Our analyses focussed primarily on frequency counts and proportions (per centages) for each of the responses. We also conducted a chi square analysis on the frequency distribution of responses for each question by respondent group (shown using cross-tabulations). There are some limitations to using this analytical approach with unequal cell distributions, and where data was likely not missing completely at random. However, the chi square results gave us at least an indication of whether response patterns that appeared to differ across respondents from different survey locations, or across different age groups, or between men and women were really different, or were perhaps just artefacts of our dataset.

Taking a conservative approach, in our results section we have reported between-group differences only where the chi square test showed that these differences were significant at the $p < .001$ level—that is, only if there was less than a 1 per cent probability that the differences could have occurred by chance. Thus, if the results showed that more men responded 'yes' to one of the questions, and more women responded 'no', we do not report this difference if it is not significant, because it could be a chance outcome, rather than a real difference between men and women in Vanuatu.

For the qualitative data, all discussions and interviews were summarised in notebooks and or recorded using both digital and cassette recorders. Note book summaries were then directly translated into English and digital and cassette recordings were verbatim transcribed, translated, summarised and entered in an excel 'database' summarising key themes. A full analysis was not performed on the qualitative narratives, but some key findings are presented as 'qualitative insights' in this report (including direct quotations, edited to be grammatical in English, from interviews and focus groups), to complement and further expand on our survey analysis. In addition, a write-up on the small-medium business interviews is provided in Appendix A.

Communication activities carried out at the completion of fieldwork

In some research sites, we carried out communication activities at the completion of the quantitative and qualitative fieldwork. We were careful to ensure that the communication activities took place *after* data collection was complete, so as not to influence the responses collected in each area.

Our two activities—research dissemination and awareness building—were packaged as part of PiPP's overall communication strategy to promote community conversations about key findings from its research and policy analysis.

The aim of the first activity was to share key findings from PiPP's 2009 study with the community members, in order to help them understand both the wider benefits and common concerns surrounding telecommunications policies. The key findings we discussed included:

- The increase in access to and use of mobile phones and perceived benefits and costs (social concerns) relating to phones in general and in specific relation to gender, small to medium businesses, and household expenditure
- How phones were assisting both men and women in their different social (e. g. family, church) and economic (e.g. business) roles and responsibilities.
- Disparities between men and women in mobile phone ownership, use of SMS texting, frequency of phone use and purpose of phone use
- Key concerns for women regarding the impacts of telecommunications on their children's health, well-being, extra marital affairs, and teenage pregnancies
- Key concerns for men regarding the impacts of telecommunications on the breakdown of custom and the authority of chiefs, communal harmony, self-sufficiency of rural economy, and land disputes
- The role of telecommunications in supporting sustainable small to medium business and economic growth in Vanuatu, including business observations on how telecommunications have reduced the cost of doing business, helped in business growth, improved the flow of information and communication channels, assisted efficiency, and complemented face to face communication
- The proportion of household income spent on buying and using phones, and related concerns about managing expenditure on phones.

A question and answer session following our presentation encouraged very strong community conversations, debates, and affirmations. To most people the findings reflected their own experiences. In the new sites (where the 2009 study had not been conducted), people talked about their own experiences and appreciated the findings as giving them additional awareness and learning about phones. Many also reflected on how the experiences of phones in other islands were slowly being seen in their lives. In sites where phones have been available for longer, people discussed the need for the community to manage the social concerns surrounding phones and appreciated the different benefits of mobile telephony.

The aim of the second activity was to help people learn more about different ways of maximising the benefits of ICTs in their lives. As new ICTs are being gradually introduced into the country (such as internet, SMS banking, and green energy

initiatives), we feel that creating awareness on their different benefits, as well as potential social concerns, is important. Often people remain uninformed about certain policies and interventions until the service reaches them. When this happens, they may not begin to learn about the new services until they are actually in use, which may limit the ways in which the technology is used.

The ICT awareness session was a first of its kind, and was well received, particularly in the most remote sites. In developing content for the awareness sessions we reviewed a number of ICT (mobile SMS, M-banking (Mobile Banking), internet/email) and green energy innovations from around the world: in Kenya, Tanzania, Peru, Africa, Brazil, Malawi, Mozambique, Uganda, Salvador, India, New Zealand, Italy, Bangladesh, Fiji and PNG. Key topics covered in the sessions included:

- Mobile innovations in health. One example we discussed was Project Masiluleke in South Africa, which is designed to harness the power of mobile technology as a high-impact, low-cost tool in the fight against HIV/AIDS. As part of the project, one million text messages per day are being sent throughout South Africa encouraging people to be tested and treated for HIV/AIDS. We discussed how similar programs could be run in Vanuatu, for different health issues.

- Mobile SMS innovations in agriculture. For example, we discussed the use of Google Trader, a marketplace application used in Uganda that allows people to buy and sell goods and services on their phone using SMS. This application was developed in response to discussions with Uganda's rural producers and consumers where it was revealed that they face challenges linking with markets. We discussed how a similar application could work in Vanuatu. In remote Torba province, the Agricultural officer based in Sola talked about using basic mobile SMS to receive and pass on information from farmers.

- Mobile innovations in banking. At the time of field planning, the Vanuatu National Bank was trialling mobile SMS service for their rural customers. We discussed how useful this could be for communities.

Most of the sessions focussed on mobile phones (particularly SMS), because most people in sessions held at remote areas like Vetumboso (Banks) did not know about internet/email. However, they appreciated the learning from the research teams as well from other members who knew more about the internet.

The overall feedback from these sessions was very positive. People requested more of this type of activity for their communities. They thought such activities would help them understand how new policies and technology changes would impact on their lives. Many older people expressed fears surrounding the many as-yet-unknown social concerns, particularly potential bad influences of the internet on young people. Others were more positive and provided balanced views. Those in some form of business discussed the benefits of internet and phones, but at the same appreciated the need to manage the negative effects of phones on youth and in marital relationships.

3. Household economics

To build a picture of the financial resources that survey respondents had access to, we asked them to describe various economic conditions in their households. As we report in this section, we found that the average household had two income earners and two dependents. Urban households had considerably higher incomes and were more likely to have members in paid employment than were rural households, which primarily earned income from agriculture or self-employment. The majority of households had family living elsewhere in Vanuatu, and received some economic support (primarily goods, food, and money) from these family members. However, households were not highly reliant on this outside support.

Support and dependents within the household

The most common financial arrangement for households in this survey (i.e. the modal response) was for each to have two people contributing to the household financially, and two financial dependents. However, the number providing financial support ranged from 1 to 15, and the number depending on financial support ranged from 1 to 16. Looking at arithmetic averages, most households had only one person (30.5 per cent) or two people (44.9 per cent) providing financial support; a similar proportion (77.8 per cent) had four or fewer financial dependents. There were no significant differences in the number of financial supporters and dependents across survey locations.

Household income

Where does the money come from?

We asked respondents first where their household earned income from, and then how much they earned from each source, per month.

As Table 7 below indicates, the majority of respondents (68.3 per cent) reported that their household income came from only one of the source categories included in the survey.[30] However, this proportion differed substantially between urban and rural areas: more respondents in urban areas (40.4 per cent) reported multiple household income sources than did respondents in rural areas (24.1 per cent).

Across all areas, self-employment and paid work were the main sources of household income (44.5 and 43.9 per cent of respondents, respectively, reported that their household income came from these sources), followed by agriculture (34.1 per cent). Again, though, this pattern differed between areas, with a much greater proportion of urban respondents (86.0 per cent) indicating they or their household members were in paid employment compared to rural respondents (20.0 per cent).

30. Note that this does not imply a single *source* of income, just a single type of income; for example, households may have had two sources of income from paid work.

These differences between rural and urban areas are further reflected in the significant differences in reported income sources across respondent age groups and education levels, and between men and women. Most notably with respect to age, relatively far more respondents aged under 25 (64.5 per cent) said they or their household members were in paid work compared to those aged 25 and over (31.4 per cent). Conversely, these young respondents were less likely to be in households earning an income from agriculture (only 26.3 per cent of under 25 year olds reported this income source) than were older respondents (41.4 per cent of those aged 25 and older). These age differences likely reflect the higher proportion of youth in urban areas, where the greatest concentration of paid work is located.

A similar difference existed between respondents with different levels of education: those with a tertiary qualification were far more likely to be in a household earning income from paid work (83.7 per cent) than were those with no formal education (16.5 per cent). In fact, increasing levels of respondent education appeared to relate to a greater proportion of respondents reporting household income from paid work, ranging from 30.1 per cent of those with primary education, to 60.5 per cent of those with secondary education, to 77.2 per cent of those who had been to technical colleges or training schools. The opposite pattern was true with respect to agriculture: 46.3 per cent of those with no formal education were in households earning income from this source, decreasing to 42.6 per cent of those with primary education, to 23.1 per cent of those with secondary education, to 18.1 per cent of those with technical training, to as few as 11.6 per cent of those with tertiary education. Although the respondent was not always the sole or even primary income earner in each household, these trends suggest a strong relationship between education and employment, and likely also reflect the higher levels of education for respondents in urban areas.

Finally, a notable difference between men and women was that a greater proportion of female respondents were in households earning income from paid work (51.0 per cent) compared to men (38.9 per cent). On the other hand, relatively more men were in households engaged in agriculture and fishing (59.6 per cent and 11.3 per cent respectively) compared to women (46.1 per cent and 5.1 per cent respectively).[31]

Table 7. Proportion of respondents earning some income from various sources

Survey location	Paid work	Self-employed	Agriculture	Fishing	Other	*Single income source*	*Multiple income sources*
Blacksands	88.0%	47.6%	15.8%	10.6%	1.7%	*46.7%*	*53.2%*
Chapuis East	77.8%	29.1%	1.8%	0.9%	0.9%	*81.3%*	*14.6%*
Freswota 1	91.9%	43.1%	8.2%	3.5%	1.2%	*57.0%*	*41.9%*
URBAN	86.0%	41.6%	10.5%	6.4%	1.3%	*58.1%*	*40.4%*
Anelghowhat	31.4%	72.7%	10.2%	10.2%	5.1%	*72.7%*	*25.2%*
Atabulu/ Atangurua	10.8%	32.2%	81.5%	1.5%	1.5%	*72.3%*	*27.6%*
Isini	41.0%	50.0%	27.2%	12.1%	0.0%	*66.7%*	*24.2%*
Lamen Bay	27.0%	44.5%	30.2%	3.2%	0.0%	*95.3%*	*4.8%*
Lamnatu	6.2%	44.6%	50.8%	0.0%	1.5%	*96.9%*	*3.1%*
Levetlis	3.3%	66.6%	53.3%	10.0%	23.3%	*66.7%*	*29.9%*

31 . These differences should be interpreted with caution, as they may have been influenced by the time of day in which the survey was carried out. Although survey enumerators visited households at different times throughout the day (ranging from 7am to 6pm), many of these visits may have been during ''working hours'', when people in paid work would not have been home. In such cases, female spouses of the head of household may have reported income from paid work in reference to their spouse, not themselves. This may have also affected the accuracy of the amounts of income recorded: where women reported income for their spouse, they may not have known the exact amounts being earned.

Ngala	6.9%	8.6%	84.5%	0.0%	0.0%	*100.0%*	*0.0%*
Port Narvin	5.6%	27.8%	61.1%	44.5%	7.5%	*59.3%*	*40.8%*
Port Olry	6.4%	40.3%	59.5%	10.6%	2.1%	*70.2%*	*23.3%*
Sola	63.6%	41.4%	31.8%	3.2%	3.2%	*58.8%*	*38.2%*
Umej	17.5%	85.1%	32.2%	20.5%	5.8%	*49.9%*	*49.8%*
Unpongkor	23.5%	39.1%	26.6%	20.3%	23.4%	*70.5%*	*28.1%*
Vetumboso	2.6%	52.7%	71.9%	7.7%	0.0%	*69.2%*	*30.9%*
RURAL	20.0%	45.6%	47.3%	10.4%	4.8%	*74.0%*	*24.1%*
Total	43.9%	44.5%	34.1%	9.1%	3.8%	*68.3%*	*30.3%*

Table Note: The categories of income in columns 2 to 6 are non-exclusive (e.g. some respondents may earn income from both paid work and agriculture). However, columns 7 and 8 represent exclusive groupings: either respondents indicated they had a single income source, or they indicated multiple sources. In some cases respondents did not offer a response for the income question, so columns 7 and 8 do not always add to 100% in each row.

When asked to specify the types of agriculture they or their household members were engaged in, the most frequently cited crops were copra (133 responses), kava (90 responses), and taro (38 responses). A few households farmed chickens, pigs, peanuts, bananas, coffee, or manioc. We also asked those who indicated that their household income came from fishing to specify which kinds of sea life they caught. The most frequently cited were Naura/lobster (31 responses), Mangru (13), Reef Fish (9), and Tuna (6). Finally, we asked respondents whose households earned income from 'other' sources to identify this source. A couple said they sold items at the market, and one household earned income from a member who was a New Zealand seasonal worker. However, the most common 'other' sources of income were from forestry in general (6 responses), and sandalwood farming in particular (15), and from red mat basket weaving (8).

How much?

Some respondents declined to provide information about their household income levels (50 respondents; approximately 1.5 per cent of the total sample), so we do not have a full picture of household economic resources. We also have no means to verify the income amounts reported by respondents. Nevertheless, some interesting patterns emerge from our survey data.

Firstly, the responses we gathered suggest that paid work provided the highest household income amounts per month: 57.8 per cent of those households earning income from paid work were earning over 30,000 vatu per month, compared to only 14.9 per cent of those earning income from agricultural work, 17.9 per cent of those earning income from fishing, 22.1 per cent of those earning income from self-employment, and 8.0 per cent of those earning income from other sources. Of course, as indicated in Table 7 above, approximately a third of households were earning incomes from multiple sources; thus, in many cases, these lower-earning vocations may have been providing secondary (or seasonally-confined) incomes.

Secondly, looking at overall income levels, average monthly household income significantly differed between urban and rural areas: in urban areas it was over 68,000 vatu per month, which was over twice as much as in rural areas (28,474 vatu per month). The average income across the total sample was just under 43,000 vatu per month, but this ranged from as low as 5,000 to as high as 320,000, as shown in Table 8 below.[32] Figure 4 illustrates the spread of total reported monthly income across the income bands used for collecting data in the survey.

32. Compared to data reported in the Vanuatu National Statistic Office's 2006 Household Income and Expenditure Survey (HIES), these income figures are somewhat lower than would be expected. According to the HIES, the average urban household income in 2006 was 86,200 vatu per month, and the average rural household income was 52,500 per month. This discrepancy may suggest that our sample is not

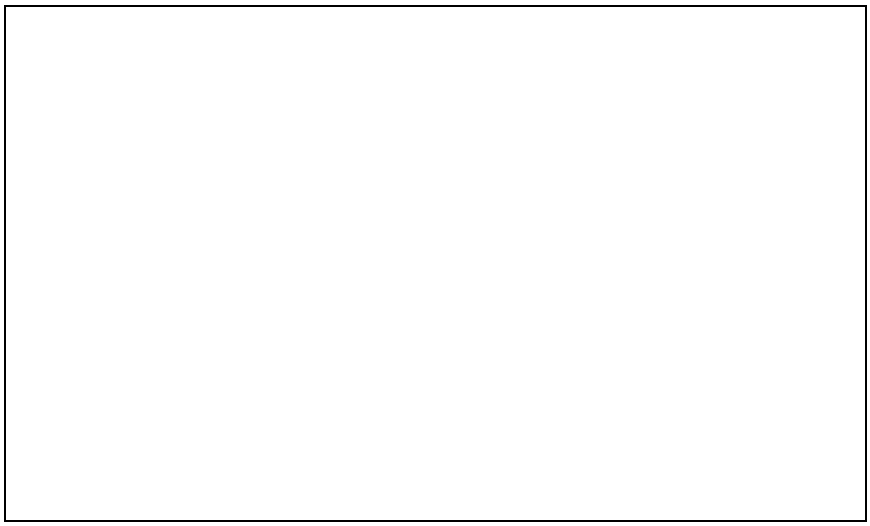
Table 8. Mean monthly household income of respondents in different survey locations

Survey location	Mean monthly income*	Std. Deviation	N
Blacksands	77,389	57,832	226
Chapuis East	40,093	31,615	108
Freswota 1	80,063	48,901	79
URBAN	68,148	53,096	413
Anelghowhat	30,260	34,469	77
Atabulu/Atangurua	13,692	11,702	65
Isini	30,250	33,591	60
Lamen Bay	30,164	35,190	61
Lamnatu	13,868	19,603	53
Levetlis	13,103	11,605	29
Ngala	20,086	21,754	58
Port Narvin	18,333	15,510	54
Port Olry	50,698	28,381	43
Sola	52,742	46,612	62
Umej	42,424	49,119	33
Unpongkor	27,459	36,761	61
Vetumboso	28,590	25,031	78
RURAL	28,474	32,686	734
Total	42,759	45,386	1,147

*Table Note: We calculated mean total household income levels by converting categorical income bands into continuous variables (e.g. converting 'under 10,000' to 5,000, 'between 10,000 and 20,000' to 15,000, 'between 50,000 and 70,000' to 60,000, and 'over 100,000' to 130,000, etc.) for each of the income types (i.e. paid work, agriculture, self employment, fishing, and other), and then summing these separate incomes for each respondent. An analysis of variance procedure indicated that the mean total income levels varied significantly across the survey locations reported in the table ($F(14)= 10.43$, $p<.001$).

Figure 4. Frequencies of reported total household income (by income band)

representative of the national average. However, it is also likely due to differences in the data collection processes in the two surveys, and the limited reliability of income self-reports. In rural areas, in particular, income tends to be irregular and seasonal, and households may have difficulty estimating their monthly averages.



Support from outside the household

Importantly, many households relied not just on their own incomes, as described above, but on support from other family members—including those living far away.

Who has family outside the household?

It appears common for families to be widely dispersed: the majority of respondents (78.9 per cent) said they had family members living elsewhere in Vanuatu. In addition, a sizeable proportion (29.7 per cent) had family members living overseas. As shown in Table 9, this dispersal of family members differed significantly across different survey locations (although there was no significant pattern of difference between rural and urban locations—proportions were much the same in each, and in line with the national average, and thus are not reported).

Table 9. Proportion of respondents with family members living elsewhere - by survey location

Survey location	Family living elsewhere in Vanuatu	Family living overseas
Blacksands	79.7%	46.3%
Chapuis East	94.0%	33.3%
Freswota 1	50.0%	33.7%
Anelghowhat	92.5%	40.0%
Atabulu / Atangurua	93.8%	15.4%
Isini	77.3%	28.8%
Lamen Bay	76.2%	36.5%
Lamnatu	81.5%	58.5%
Levetlis	100.0%	40.0%
Ngala	84.5%	10.3%
Port Narvin	75.9%	11.1%
Port Olry	72.3%	21.3%
Sola	74.6%	12.7%
Umej	70.6%	29.4%
Unpongkor	92.2%	10.9%
Vetumboso	50.0%	2.6%
Total	78.9%	29.7%

What support do these distant family members provide?

Respondents reported receiving a range of different types of support from these family members living elsewhere. The most common type of support was clothing (14.9 per cent of all respondents received this type of support), followed by money (13.6 per cent) and island food (12.1 per cent). However, the proportion of respondents receiving each type of support differed significantly across urban and rural areas, and across survey locations. As shown in Table 10, many more urban respondents (30.9 per cent) reported receiving island food from their families than did rural respondents (2.1 per cent), presumably because rural families were able to grow this food themselves or source it from their local community. Conversely, more rural respondents than urban respondents reported receiving items such as clothes and mobile phones—likely because these items are relatively easier to access and more affordable for urban households. Other forms of support identified by respondents included kava, building tools and materials, rice, school stationary, soap, video screens, generators, and other retail goods.

Table 10. Proportion of respondents receiving various kinds of support from family members living elsewhere

Survey location	Receive clothes	Receive money	Receive mobile phone(s)	Receive island food	Receive other support
Blacksands	11.0%	18.1%	0.9%	48.4%	0.4%
Chapuis East	6.0%	7.7%	9.4%	4.3%	0.9%
Freswota 1	12.8%	8.1%	5.8%	20.9%	-
URBAN	10.0%	13.3%	4.2%	30.9%	0.5%
Anelghowhat	23.8%	15.0%	6.3%	2.5%	-
Atabulu/Atangurua	10.8%	16.9%	10.8%	-	6.1%
Isini	19.7%	21.2%	4.5%	1.5%	-
Lamen Bay	9.5%	15.9%	1.6%	-	1.6%
Lamnatu	52.3%	38.5%	26.2%	-	3.0%
Levetlis	43.3%	23.3%	6.7%	-	23.3%
Ngala	3.4%	1.7%	-	3.4%	1.7%
Port Narvin	16.7%	9.3%	5.6%	-	5.6%
Port Olry	12.8%	6.4%	21.3%	-	-
Sola	6.3%	4.8%	-	9.5%	1.6%
Umej	8.8%	5.9%	-	-	-
Unpongkor	10.9%	15.6%	9.4%	7.9%	4.7%
Vetumboso	15.4%	3.8%	2.6%	-	1.3%
RURAL	17.6%	13.8%	7.3%	2.1%	2.7%
Total	14.9%	13.6%	6.2%	12.5%	2.3%

Table Note: Categories of support are non-exclusive (e.g. some respondents may receive both money and clothes), so row totals may add up to more than 100%.

When we asked respondents how frequently they received each of these kinds of support, their responses ranged from once a year to once per week. On average, respondents who were supported by their families were sent mobile phones approximately once a year, clothes twice a year, money three times per year, and other forms of support six times per year. Although there were some differences in the frequency of support reported in different areas, these differences were small and are not reliable to report due to low response rates on this question in some survey locations.

How important is this support?

Finally, we asked respondents how reliant they were on the outside support they received. Approximately a third of the overall sample (33.5 per cent) indicated that they relied to some extent on this support, though only a small proportion (3.3 per cent) reported being highly reliant. Urban respondents were significantly more likely to indicate some level of reliance on outside support (41.2 per cent) than rural respondents (29.2 per cent). As Table 11 illustrates, reliance on outside support varied significantly across survey locations, with half or more of the respondents in Blacksands, Lamnatu, and Levetlis indicating they relied on outside support to some extent, and less than a fifth of the respondents in Ngala, Port Narvin, Sola, Umej, and Vetumboso indicating they relied on such support.

Table 11. Proportion of respondents indicating various levels of reliance on outside support – by survey location

Survey location	Low reliance	Moderate reliance	High reliance	Total with some reliance
Blacksands	32.6%	12.8%	7.0%	52.4%
Chapuis East	17.1%	6.0%	0.0%	23.1%
Freswota 1	25.6%	5.8%	4.7%	36.1%
URBAN	27.0%	9.5%	4.7%	41.2%
Anelghowhat	23.8%	6.3%	5.0%	35.1%
Atabulu/Atangurua	23.1%	3.1%	0.0%	26.2%
Isini	27.3%	12.1%	6.1%	45.5%
Lamen Bay	12.7%	7.9%	3.2%	23.8%
Lamnatu	49.2%	16.9%	6.2%	72.3%
Levetlis	30.0%	10.0%	10.0%	50.0%
Ngala	6.9%	1.7%	0.0%	8.6%
Port Narvin	7.4%	7.4%	1.9%	16.7%
Port Olry	23.4%	2.1%	0.0%	25.5%
Sola	15.9%	1.6%	0.0%	17.5%
Umej	0.0%	11.8%	2.9%	14.7%
Unpongkor	18.8%	4.7%	0.0%	23.5%
Vetumboso	11.5%	6.4%	1.3%	19.2%
RURAL	19.7%	6.9%	2.6%	29.2%
Total	22.3%	7.9%	3.3%	33.5%

4. Communication preferences

Communities differ not only in the channels of communication that are available to them, but also in their preferences for using these different channels. The survey findings reported in this section show that phones have become a primary mode of communication across the country. The overwhelming majority of households now have access to a mobile phone, which appears to be the most commonly owned electrical appliance in both urban and rural areas. However, phones have not completely supplanted face-to-face interaction, which remains a preferred channel for many communication purposes. Furthermore, although mobile phone penetration in rural areas is high, rural respondents reported using their phones less frequently than urban respondents. Use of fixed line phones is low in both urban and rural areas.

Communication within community groups

Approximately a third of the survey respondents (34.4 per cent) said they belonged to some form of community group in, or in some cases extending beyond, their local area. Membership was higher amongst rural respondents (40.8 per cent) than urban respondents (23.9 per cent). The average membership size of the community groups was 36, but varied widely (SD=79.6); some groups had as few as two members, and others as many as 1,000. Some groups were formed around sporting activities, others around supporting the elderly or youth (such as 'Youth Challenge'), and others involved financial support schemes or business ventures (such as The Levetlis Women's Club in Pentecost, which comprises likeminded women who want to produce mats for sale in Port Vila).

We asked respondents how they communicated within these groups, as well as how group members communicated with any 'clients' or customers and with any suppliers. As shown in Table 12, the most common means of communication was face-to-face, but phones were also frequently used for communication with suppliers. In urban areas, but not in rural areas, communication within groups also frequently happened via telephone. There were no significant differences between rural and urban areas in terms of communication with clients or suppliers.

Table 12. Proportion of respondents belonging to some form of community group who primarily used each channel of communication for different purposes

Communication channel	Communication with suppliers	Communication with clients	Communication within groups		
			Total	*Urban*	*Rural*
Face-to-face	43.7%	68.4%	92.3%	*79.8%*	*96.2%*
Through local leaders	2.1%	11.8%	1.4%	*2.0%*	*1.3%*
Radio*	2.1%	1.5%	0.2%	*0.0%*	*0.3%*
TV**	0.0%	0.4%	0.2%	*0.0%*	*0.3%*
Newsletter	5.9%	1.5%	0.0%	*0.0%*	*0.0%*
Phone	43.7%	14.3%	5.8%	*18.2%*	*1.9%*
Internet	1.3%	0.4%	0.0%	*0.0%*	*0.0%*

Letters	1.3%	1.8%	0.0%	*0.0%*	*0.0%*

Table Notes:

Categories are non-exclusive (e.g. some respondents may use each communication channel for communication with suppliers, clients, and groups), so row totals may add to more than 100 %.

* Radio here refers to a broadcast radio, not a tele-radio (field or two-way radios, which are still used in some provincial government offices but are now being phased out). Broadcast radios are used to pick up AM and FM signals, and may be operated using a power source or dry cell batteries.

** Most rural areas do not have good television reception, but may use televisions to watch DVDs and videos.

Differences between communication channels

We also asked respondents how important different modes or channels of communication were in general for them, and which communication channels they tended to use for different purposes. We summarise the responses to each of these questions below.

Importance of different communication channels

Overall, the communication channel rated as 'very important' by the greatest proportion of respondents was face-to-face communication (67.8 per cent), followed by communication via phones (57.5 per cent). The channels most frequently rated as 'not at all important' were the internet (34.9 per cent), newsletters (33.8 per cent), and television (30.4 per cent). However, importance ratings differed significantly between urban and rural residents, as shown in the tables below. Most notably, rural respondents were more likely than urban respondents to rate written word, image, and technology-based forms of communication (such as advertising, internet, letters, newspapers, radio, television and even telephones) as unimportant, favouring more personal, interactive modes of communication (face-to-face, via local leaders, and through village information centres). Nevertheless, the majority of residents in both urban (65.6 per cent) and rural (53.0 per cent) areas thought that communication via phone was very important for them.

Table 13 Proportion of urban respondents indicating level of importance of communication modes

Mode of communication	Not at all important	Little bit important	Important	Very important
Advertising	7.3%	19.9%	42.9%	23.5%
Face-to-face	2.3%	5.4%	21.8%	70.5%
Village information centre	7.8%	17.5%	41.7%	25.9%
Internet	19.5%	20.2%	23.8%	23.3%
Through local leaders	6.3%	17.4%	48.1%	26.1%
Letter	14.3%	29.0%	36.8%	15.7%
Newsletter	13.2%	24.2%	34.0%	23.7%
Newspaper	3.7%	15.0%	37.9%	41.2%
Phone	1.4%	6.8%	25.3%	65.6%
Radio	2.3%	11.9%	37.2%	45.9%
TV	3.8%	16.7%	35.8%	40.5%

Table 14. Proportion of rural respondents indicating level of importance of communication modes

Mode of communication	Not at all important	Little bit important	Important	Very important
Advertising	25.7%	22.0%	21.7%	10.3%
Face-to-face	2.4%	4.7%	25.5%	66.3%
Village information centre	9.7%	20.8%	30.0%	27.4%
Internet	43.6%	8.7%	7.5%	5.2%
Through local leaders	3.7%	18.6%	31.5%	43.8%
Letter	28.2%	25.6%	17.3%	7.9%
Newsletter	45.2%	15.5%	10.7%	2.5%
Newspaper	32.1%	22.6%	18.3%	5.0%
Phone	14.0%	7.6%	17.1%	53.0%
Radio	13.5%	16.6%	32.0%	25.4%
Tv	45.4%	15.2%	10.3%	4.6%

Use of different communication channels

Across all respondents, face-to-face communication was the most frequently used mode of communication for most purposes. The exceptions were for emergencies, when phones were most frequently used (by 56.4 per cent of respondents), and for news and weather information, for which radios were most frequently used (by 60.3 per cent and 65.6 per cent of respondents, respectively). In addition, approximately equal proportions of respondents used face-to-face communication (24.0 per cent), radios (23.4 per cent), and phones (26.2 per cent) for accessing government services (e.g. contacting government personnel to obtain information, resources, or services).

However, there were again some significant differences across urban and rural respondents, as shown in the following tables. Use of the internet was low across all respondents, but appeared to be slightly higher amongst rural respondents for purposes such as banking, access to government services (generally information provided by government departments, particularly surrounding agriculture), and accessing news.[33] Urban respondents were more likely than rural respondents to use phones for social and emergency purposes, but were notably less likely to use them for banking, education, and accessing government services, or to get weather information. Television is also a far more frequently used source of information in urban areas, likely reflecting better electricity coverage and higher rates of appliance ownership in these areas.

33. A review of the data by survey location shows that the majority of these rural respondents using the internet were in Isini, but some respondents from Lamnatu, Sola, Lamen Baye, Ngala, and Vetumboso also said they used the internet for some purposes.

Table 15. Proportion of urban respondents using each communication mode as a primary means of communication for various purposes

Mode of communication	banking	business	community groups	education	emergency	access government services	news	social	weather
Face-to-face	93.0%	51.2%	78.2%	80.8%	8.2%	30.0%	1.4%	59.3%	2.3%
Internet	0.0%	0.3%	0.0%	0.2%	0.2%	0.3%	0.2%	0.0%	0.9%
Letters	0.0%	0.0%	1.7%	0.2%	0.0%	10.3%	0.0%	2.6%	0.0%
Newsletter	0.0%	0.0%	0.2%	0.2%	0.0%	0.8%	0.2%	0.0%	0.0%
Newspaper	0.5%	1.5%	0.7%	0.5%	0.2%	7.8%	6.8%	0.0%	1.9%
Phones	5.5%	39.0%	10.3%	14.4%	69.2%	21.4%	3.5%	33.7%	10.0%
Radio	0.7%	6.3%	5.3%	3.4%	21.2%	22.7%	52.9%	0.9%	72.3%
Through local leaders	0.0%	0.3%	3.1%	0.0%	0.2%	1.0%	0.0%	3.3%	0.0%
TV	0.2%	1.5%	0.5%	0.2%	0.7%	5.8%	35.0%	0.2%	12.6%

Table Note: Some of these results suggest that respondents were thinking about various communication channels as a source of information provision, rather than two-way communication; for example, TV is an unlikely source of communication for banking, but may be a valid source of information.

Table 16. Proportion of rural respondents using each communication mode as a primary means of communication for various purposes

Mode of communication	banking	business	community groups	education	emergency	access government services	news	social	weather
Face-to-face	80.6%	55.3%	46.4%	63.5%	20.8%	20.5%	4.3%	71.0%	10.4%
Internet	1.4%	0.0%	0.6%	0.0%	0.1%	1.2%	2.2%	0.0%	0.3%
Letters	0.1%	0.4%	3.9%	1.9%	0.0%	1.5%	0.0%	1.3%	0.0%
Newsletter	0.0%	0.0%	2.1%	0.1%	0.0%	1.0%	0.3%	0.0%	0.0%
Newspaper	1.6%	0.0%	3.6%	0.3%	0.0%	6.2%	9.1%	0.0%	1.1%
Phones	13.5%	36.9%	12.3%	26.8%	49.1%	29.1%	6.5%	19.4%	17.8%
Radio	2.2%	2.7%	9.6%	5.7%	24.8%	23.9%	64.7%	1.2%	61.7%
Through local leaders	0.4%	4.3%	21.4%	1.7%	4.8%	16.3%	7.4%	6.5%	8.5%
TV	0.1%	0.4%	0.3%	0.0%	0.3%	0.3%	5.6%	0.5%	0.3%

Communication tools

Finally, we also asked respondents which communication 'tools' or devices they had access to, and how frequently they used these tools. As shown in Table 17 below, across all respondents the most readily accessible communication tool was the mobile phone—almost all respondents (91.0 per cent) said they had access to one. The majority of urban respondents also had access to televisions (57.4 per cent) and radios (61.4 per cent), whereas far fewer rural residents did (3.0 per cent and 24.5 per cent, respectively). Computer access was also notably higher amongst urban residents (14.0 per cent) than amongst rural respondents (only 3.0 per cent).

However, there were significant differences between survey locations both within and across urban and rural areas—for instance; Chapuis East had much lower rates of access to radios, televisions and computers than did the urban areas in Port Vila. In contrast, Isini had higher

access rates compared to rural areas, and even compared to the urban area of Chapuis East, for most communication tools. Access to any form of communication tool appeared to be lowest in Vetumboso and Levetlis.

Table 17. Proportion of respondents in each area with access to different communication tools

Survey location	Computer	Computer with internet	Fax	Mobile	Private fixed line	Public fixed lines	Radio	TV
Blacksands	13.7%	6.6%	2.2%	96.9%	4.9%	11.5%	78.4%	67.4%
Chapuis East	4.3%	5.1%	-	98.3%	3.4%	13.7%	18.8%	24.8%
Freswota 1	27.9%	15.1%	3.5%	88.4%	14.0%	17.4%	74.4%	75.6%
URBAN	14.0%	7.9%	1.9%	95.6%	6.3%	13.3%	61.4%	57.4%
Anelghowhat	5.0%	-	2.5%	85.0%	32.5%	78.8%	12.5%	2.5%
Atabulu / Atangurua	3.1%	-	-	95.4%	1.5%	3.1%	30.8%	1.5%
Isini	10.6%	12.1%	7.6%	95.5%	10.6%	21.2%	53.0%	16.7%
Lamen Bay	1.6%	-	-	82.5%	4.8%	19.1%	22.2%	-
Lamnatu	-	-	-	93.9%	3.1%	1.5%	-	-
Levetlis	-	-	-	76.7%	-	-	56.7%	-
Ngala	1.7%	1.7%	-	81.0%	1.7%	-	8.6%	-
Port Narvin	-	-	-	98.2%	1.9%	-	37.0%	1.9%
Port Olry	-	-	-	100.0%	-		21.3%	10.6%
Sola	11.1%	4.8%	9.5%	96.8%	11.1%	17.5%	11.1%	1.6%
Umej	-	2.9%	-	79.4%	50.0%	52.9%	11.8%	2.9%
Unpongkor	1.6%	-	3.1%	95.3%	6.3%	1.6%	18.8%	1.6%
Vetumboso	-	-	-	68.0%	-	-	3.9%	
RURAL	3.0%	1.7%	2.0%	88.4%	9.0%	15.9%	20.5%	3.0%
TOTAL	6.9%	3.9%	1.9%	91.0%	8.0%	15.0%	35.2%	22.6%

Reflecting these different patterns of access, respondents in different areas also significantly differed in the frequencies with which they used different communication tools. Rates of use for each tool type are shown in the tables below. Most notably, although the majority of both urban and rural respondents used mobile phones, urban respondents were far more likely to use these on a daily basis, whereas many rural respondents used phones less frequently (ranging from less than once a month to about once a week). Another point of interest is that the frequency of use for mobile phones was much higher than for fixed line phones, in both rural and urban areas. This likely reflects both the growing convenience, affordability, and familiarity of mobile phones, and the gradual 'phasing-out' of public fixed lines due to high maintenance costs and limited convenience for rural users (who may have to travel some distance to access a pay phone) - these shifts are discussed further in Section 6 of this report.

Table 18. Proportion of urban respondents using different communication tools – by frequencies

Communication tool	Never	Less than once a month	One or two times a month	Every week	Every day
Computer	85.4%	0.7%	1.0%	4.1%	8.9%
Computer with internet	90.8%	1.2%	1.2%	2.4%	4.3%
Fax	97.3%	0.5%	0.2%	0.7%	1.2%
Mobile	6.1%	1.4%	5.6%	15.9%	71.1%
Private fixed line	93.1%	1.2%	1.0%	1.7%	3.1%
Public fixed lines	87.6%	3.1%	3.3%	5.7%	0.2%
Radio	35.2%	1.4%	3.3%	12.2%	47.9%
TV	37.7%	1.9%	0.9%	6.4%	53.1%

Table 19. Proportion of rural respondents using different communication tools - by frequencies

Communication tool	Never	Less than once a month	One or two times a month	Every week	Every day
Computer	96.3%	0.4%	0.5%	0.8%	1.9%
Computer with internet	97.5%	0.4%	0.1%	1.0%	1.0%
Fax	97.5%	0.6%	0.7%	1.1%	0.1%
Mobile	16.7%	14.2%	13.3%	16.3%	39.5%
Private fixed line	89.5%	3.4%	2.3%	3.3%	1.5%
Public fixed lines	83.5%	4.9%	6.0%	4.6%	1.1%
Radio	76.6%	4.6%	4.6%	4.9%	9.3%
TV	95.9%	0.8%	0.3%	1.0%	2.0%

Table note: The frequencies of use for each communication tool significantly differ between urban and rural residents for all tools except fax and public fixed lines, for which the differences are not statistically significant.

5. Complementary infrastructure

Survey results indicate that vehicle ownership is low throughout the country, especially in rural areas. This is likely attributable not only to high purchase costs, but also to the fact that high fuel prices and poor road conditions make vehicles costly to run and maintain. In rural areas, households are more likely to own boats than cars. Poor wharf services were reported to be a major inconvenience and source of inefficiency, limiting the potential gains made through improved communication by phone. Few rural areas have grid-supplied electricity, and rely on solar cells, batteries and diesel generators. In such areas, fewer residents are able to charge their mobile phone batteries at home, and ownership of other electrical appliances such as televisions and computers is very limited. This has negative implications not only for households, but also for clinics, schools, and offices. Thus, it is perhaps unsurprising that respondents saw improved electricity services as important for education, health, and business.

Means of transport

Transportation is essential for moving people and goods around, both within and between islands in Vanuatu. In some cases it also provides a source of income. However, as the following survey data shows, vehicle ownership is low in many areas, and can be costly.

What vehicles do households own?

For this study we defined 'vehicle' as any of the following categories of primary transportation: truck/bus (i.e. larger vehicle that could be used for transporting people and cargo), bicycle, small truck/car (i.e. smaller vehicle more suitable for personal or small group use), motorbike, or boat. The majority of households (86.4 per cent) did not privately own any of the forms of primary transportation asked about in the survey, and only just over 1 per cent owned more than one form. Boats (owned by 4.9 per cent of the sample), trucks or buses (4.7 per cent), and bicycles (3.7 per cent) were the most commonly owned vehicles. In addition, a few households (1.9 per cent) owned small trucks or cars, and one reported owning a motorbike.[34]

Vehicle ownership was slightly but significantly higher in urban areas (18.5 per cent owned a vehicle of some sort, compared to 10.9 per cent in rural areas). However, rural households were more likely to own boats (6.8 per cent, compared to 1.1 per cent in urban areas).

As Table 20 shows, there was also considerable variation across survey locations, with some areas (such as Atabulu / Atangurua and Levetlis) reporting no forms of household transportation. Qualitative data collected in these areas suggests that road conditions are very poor, resulting in high vehicle maintenance costs that deter most locals from purchasing their own forms of

34 . We also asked about tractors, but none of the survey respondents said they owned one.

transport. Instead, these households may pay for transport from one of a small number of vehicles owned by wealthier villagers, or from shipping service providers in port areas.

In other areas (such as Ngala and Umej), a high proportion of households owned their own boats—reflecting the coastal positioning of these villages. Qualitative data suggests that many households use their boats (which are generally small, outboard motor vessels) to catch fish to supplement household food supply. Boats are also highly important as a form of transportation, as there are no well-formed road links in the rural areas.

Table 20. Proportion of households owning different forms of transport, by survey location

Survey location	Truck/bus	Bicycle	Small truck	Boat	None of the listed forms
Blacksands	7.9%	7.4%	3.5%	1.7%	82.7%
Chapuis East	1.8%	13.6%	3.6%	-	81.8%
Freswota 1	11.9%	4.8%	11.8%	1.2%	77.6%
URBAN	7.0%	8.4%	5.1%	1.1%	81.5%
Anelghowhat	-	-	-	17.5%	82.5%
Atabulu/Atangurua	-	-	-	-	100.0%
Isini	9.1%	-	-	-	90.9%
Lamen Bay	6.5%	3.2%	-	6.6%	85.2%
Lamnatu	21.5%	1.5%	-	-	76.9%
Levetlis	-	-	-	-	100.%
Ngala	-	-	-	22.8%	77.2%
Port Narvin	-	-	-	13.0%	87.0%
Port Olry	-	4.4%	-	-	95.6%
Sola	-	3.2%	-	-	96.8%
Umej	-	-	-	29.4%	70.6%
Unpongkor	1.6%	-	-	6.3%	92.2%
Vetumboso	-	-	-	-	100.0%
RURAL	3.3%	0.9%	-	6.8%	89.1%
Total	4.7%	3.7%	1.9%	4.9%	86.4%

How much do households spend on their vehicles each month?

One of the barriers to vehicle ownership can be the ongoing costs of operation—particularly fuel costs. To gauge how much of an impact these costs may have, we asked households that owned vehicles how much they spent on fuel each month. The costs appear to be quite high: the majority of truck or bus owners (50.9 per cent) and boat owners (58.6 per cent) said they spent more than 6,000 vatu per month on fuel. Small truck or car owners were also spending significant amounts: 14.3 per cent said they spent between 5,000 and 6,000 vatu per month, and 47.6 per cent said they spent over 6,000. This level of expenditure equates to roughly 14 per cent of the mean monthly household income across the sample, and 24 per cent of the median monthly income.

Nevertheless, owning a truck, car, or boat did not appear to be the preserve of wealthier households: approximately 48 per cent of households owning some form of transportation reported monthly household incomes below the median level. Proportionally more of these lower income households owned boats (61.4 per cent of all boat owners reported a household income lower than 25,000 per month) and proportionally fewer owned trucks or buses (38.2 per cent) and small trucks or cars (27.3 per cent). This may reflect the lower average household incomes in rural areas, where transport infrastructure is generally poor, and sea travel is more prevalent.

Roads

As shown in Table 21 below, approximately half of the survey locations have compact coral roads, while the remainder had only dirt roads, which can be more prone to washouts and deterioration (thus limiting accessibility) in heavy rains. Only two of the three urban areas (Blacksands and Freswota 1) and one rural area (Port Olry) have some tar sealed roads.

Table 21. Different road types accessible in each survey location

Survey location	Types of roads
Blacksands	Compact coral + Tar sealed roads
Chapuis East	Compact coral roads
Freswota 1	Compact coral + Tar sealed roads
Anelghowhat	Dirt roads
Atabulu/Atangurua	Compact coral roads
Isini	Compact coral roads
Lamen Bay	Compact coral roads
Lamnatu	Dirt roads
Levetlis	Dirt roads
Ngala	Dirt roads
Port Narvin	Dirt roads
Port Olry	Compact coral + Tar sealed + Dirt roads
Sola	Compact coral roads
Umej	Dirt roads
Unpongkor	Dirt roads
Vetumboso	Dirt roads

Although poor road quality can be a significant factor in vehicle costs and 'wear and tear', there did not appear to be any significant relationship between types of local roads and the forms of transportation that households owned (i.e. there was no clear pattern of lower vehicle ownership in areas with poor roads).

Qualitative insight: Roads are key for connecting communities with each other, and with other transport infrastructure

Across different sites, many focus group participants said that roads and road transport were important because they extend the services provided via shipping and air, as well as providing direct links between communities.

'Roads are very important to mothers. Having a proper road system means our villages and communities will be better linked with each other. Our mothers will be able to have easy access to transport and be able to come and sell their products in Sola [the major provincial town]. Teachers will have better access to receive their pay, and businesses will be able to travel more easily to other places. Roads will also link services to remote villages and make life convenient and easy'. Female focus group –Sola, Vanua Lava, Torba Province.

Focus group participants in Levetlis, North Pentecost, were particularly concerned about the poor quality of their roads, and the implications this had for their health, wellbeing, and business opportunities. There is currently no road network to connect the village with other areas in the district or to the main commercial centre on the island. As a result, farmers with green kava to sell must climb the hills with heavy bags of their produce to access the shipping anchorage at Melsisi and send kava over to buyers in Vila and Luganville. Sick people are carried on coconut leaves and walked to Melsisi to access basic health services. Transport to the airport from Melsisi is 10,000 vatu—nearly as much as the mean monthly income reported by survey participants in the area.

Shipping

The majority of survey locations (nine sites) are served by private shipping lines on a weekly or two-weekly basis, although the actual time and day of arrival can vary according to weather conditions and other disruptions. Five sites (Anelghowhat, Levetlis, Port Narvin, Umej, and Vetumboso) are served by ships only about once per month. Participants in a focus group in Levetlis said that they sometimes go three months without a ship stopping by. Neither Lamnatu nor Port Olry have any direct shipping services to their neighbourhood, but residents in these areas are able to travel by vehicle to Lenakel or Luganville, respectively, to access ports.

Relatively few respondents (122) reported expenditure on shipping for export to external (international) markets. Of those that did, the majority (57.4 per cent) spent more than 3,000 vatu per month on these services. More common uses of shipping services were for distribution of goods to domestic markets (618 respondents indicated expenditure on shipping for this purpose) and for travel between islands (907 respondents).

The majority (64.1 per cent) of respondents shipping to domestic markets said they spent less than 2,000 vatu per month. In contrast, the majority (78.0 per cent) of respondents using ships to travel said they spent more than 5,000 vatu per month, indicating the relative importance of ships as a mode of personal transportation. Reported expenditure levels varied slightly but significantly between urban and rural areas and between survey locations for all shipping purposes, with urban respondents generally indicating higher expenditure levels. Differences in reported travel expenditure are shown in Table 22 below. As can be seen, expenditure on travel by ship appeared to be highest for respondents in Blacksands, Levetlis, Umej, Port Narvin and Lamen Bay, where most households estimated their monthly expenditure on ship travel to be over 5,000 or 6,000 vatu. In contrast, in Port Olry respondents reported low levels of expenditure on travel by ship.

Table 22. Proportion of respondents reporting levels of monthly expenditure on shipping for personal transport

Survey location	<1000VT	1000-2000VT	2000-3000VT	3000-4000VT	5000-6000VT	> 6000VT
Blacksands	0.9%	0.5%	1.4%	3.2%	20.4%	62.0%
Chapuis East	-	8.5%	20.2%	22.3%	28.7%	13.8%
Freswota 1	8.6%	2.5%	4.9%	3.7%	25.9%	48.1%
Urban	2.3%	2.8%	6.6%	7.9%	23.5%	47.6%
Anelghowhat	-	2.8%	-	7.0%	18.3%	42.3%
Atabulu/ Atangurua	21.3%	6.6%	-	13.1%	23.0%	29.5%
Urban	2.3%	2.8%	6.6%	7.9%	23.5%	47.6%
Isini	1.5%	3.0%	4.5%	9.1%	30.3%	42.4%
Lamen Bay	6.3%	1.6%	1.6%	6.3%	77.8%	4.8%
Lamnatu	1.9%	1.9%	1.9%	3.7%	44.4%	27.8%
Levetlis	6.7%	3.3%	-	3.3%	6.7%	66.7%
Ngala	-	-	-	32.8%	62.1%	1.7%
Port Narvin	-	-	-	4.3%	61.7%	29.8%
Port Olry	10.0%	70.0%	-	-	-	-
Sola	1.7%	3.4%	-	17.2%	31.0%	19.0%
Umej	-	3.8%	-	-	-	61.5%
Unpongkor	-	1.6%	3.2%	1.6%	76.2%	17.5%
Vetumboso	1.5%	3.0%	3.0%	11.9%	11.9%	1.5%
Rural	3.6%	3.6%	1.3%	9.8%	38.7%	24.9%
Total	3.1%	3.3%	3.3%	9.1%	33.1%	33.2%

Whether or not regularly using boats or paying for shipping services, most respondents thought that shipping services were either important or very important for business (83.4 per cent), health (66.9 per cent), and education (81.2 per cent). Very few indicated that shipping was 'not at all important' (6.7 per cent for business, 12.6 per cent for health, and 5.4 per cent for education).

> **Qualitative insight: Rural residents see shipping as an economic lifeline**
>
> In the focus groups and interviews, participants described all forms of transport (motor vehicles, motor bikes, bicycles, ships and boats) as important. However, rural residents involved in inter-island business said that shipping was the most important form of transport and was a 'lifeline' for them, regardless of its downsides.
>
> *'Shipping brings money to the community. When people cut copra, they sell to ships that come in. The money they get enables people to pay for school fees or buy things like clothes and mobile phones if they want to communicate with other people. Shipping is an important transport'* Male focus group –Vetumboso, Vanua Lava, Torba Province

However, there were some significant differences in views between survey areas, as shown in Table 23. In particular, most residents in Port Orly thought shipping services were relatively unimportant for business, health, and education (again consistent with the fact that this area does not have a port within easy reach), whereas those in Sola thought these services were very important in all three respects.

Overall, shipping appears to be very important for business across both urban and rural areas. Nevertheless, it is of relatively more importance for education and health in rural areas than in urban areas, likely because many people in rural areas need to travel (by ship) to other islands to access good healthcare and education. In urban areas, responses indicating that shipping is important for these services may reflect respondent views that shipping is a general 'lifeline'.

Table 23. Importance of shipping services for different purposes - by survey location

Survey location	Important or very important for business	No or low importance for business	Important or very important for health	No or low importance for health	Important or very important for education	No or low importance for education
Blacksands	88.0%	12.0%	53.9%	45.6%	82.6%	16.9%
Chapuis	70.1%	24.8%	71.5%	27.5%	78.5%	20.7%
East	92.9%	7.2%	71.8%	27.0%	90.5%	9.5%
Freswota 1	84.0%	14.6%	62.3%	37.0%	83.1%	16.5%
URBAN	93.8%	5.0%	73.1%	23.1%	88.4%	10.3%
Anelghowhat	76.9%	20.0%	40.0%	56.9%	78.5%	20.0%
Atabulu/	95.4%	4.5%	98.4%	1.5%	98.4%	1.5%
Atangurua	87.1%	12.9%	87.3%	12.7%	98.4%	1.6%
Isini	80.0%	15.3%	45.3%	40.6%	45.3%	40.7%
Lamen Bay	86.2%	13.8%	66.6%	30.0%	86.6%	13.4%
Lamnatu	69.6%	14.3%	82.2%	17.9%	85.7%	14.3%
Levetlis	90.8%	9.3%	59.3%	40.7%	77.8%	22.3%
Ngala	36.9%	63.0%	36.9%	63.0%	39.1%	60.8%
Port Narvin	88.8%	11.1%	90.5%	9.5%	93.6%	6.3%
Port Olry	91.2%	5.8%	88.3%	11.8%	82.4%	17.6%
Sola	98.4%	1.6%	71.9%	28.2%	89.1%	10.9%
Umej	85.9%	14.1%	70.5%	28.2%	83.3%	16.7%
Unpongkor	84.1%	13.8%	70.3%	27.6%	81.4%	17.3%
Vetumboso	84.1%	14.0%	67.4%	31.0%	81.9%	17.0%
RURAL						
Total						

Table note: Respondents were asked to select from the following responses: very important, important, a little bit important, not at all important, and no response/no opinion. Because this table does not report the small proportion of 'no opinion' answers, adjacent columns for each domain (business, health, and education) do not necessarily add to 100 per cent.

Qualitative insight: Value of shipping diminished by poor wharf services

Several focus group and interview participants said they thought that wharf infrastructure needs to be improved. In particular, they would like to see construction of better wharves for ship anchorage overnight, more equipment for loading and unloading goods, and cargo storage facilities. Currently, they felt that the value of shipping services was being diminished by problems such as theft and damage of cargo, additional costs, and inconvenience.

When ships arrive at unscheduled times or are delayed without warning villagers, businesses, and government officials may be unaware, unprepared, or unavailable at the bay. If people are unable to immediately arrange a vehicle or some form of assistance to collect the cargo, items are sometimes stolen or dropped off at other islands, from where they must be retrieved at considerable expense. Where there is no road that connects to the bay in which ships anchor (e.g. in Sola, Levetlis, and Vetumboso), strenuous and costly labour is needed to transport the cargo to its destination (for example, to carry building material, such as cement bags).

'This is an isolated area…after the ship drops our cargo at the bay, we pay extra, about 100vt per carton box, to villagers to assist in taking items from the bay up to the village. The same happens for materials for building our clinic and school. At the retail level, some of our customers complain about the price of our food items, but as an owner, I see the price as just enough if I want to make a modest profit from the items after paying for their transport'.

Business representative, Female Focus Group, Vetumboso.

In Levetlis, both male and female participants reported carrying heavy kava bags up hills to get to central Pentecost to access shipping services to Luganville and Port Vila. Sick patients and some pregnant women are carried on woven coconut leaves and walked to Melsisi, which takes about six to seven hours on a dirt road. In other areas, participants also reported carrying other crops great distances to wharves.

'We really need good shipping facilities like wharves and storage facilities …When we cut copra, we have to carry bags of it on our shoulders down to the bay for the ship to load. We also carry our cargo up to the villages the same way… This makes our life very hard' NGO representative, Female Focus Group, Vetumboso

For coastal lying villages like Umej, Anelghowhat, Ngala, Lamen Bay, Port Narvin, Sola and Dillions Bay, small private boats are used to carry materials between villages—but at a very high price. Some participants said the costs were often in the order of 8,000vt to travel between Anelghowhat and Umej, 40,000vt to travel between Sola and Vetumboso, and 60,000vt to travel between Port Narvin and Dillions Bay.

Electricity

Reliable electricity supply is another key infrastructure service that can complement or hinder the growth of telecommunications and internet. Accordingly, we asked respondents a number of questions relating to their use of electricity. Their responses are summarised below.

What sources of electricity do households have access to?

Grid electricity supply is still limited to a few urban areas in Vanuatu, resulting in significant electricity access differences across the areas included in the survey. As illustrated in Table 24, the majority of urban households had access to power supplied through the grid (from a UNELCO power station), whereas only two rural locations had access to this source (Isini and Port Olry). However, even within these areas there does not appear to be universal coverage of supply—some urban households, for instance, said they relied on solar power, batteries, or generators, or had no power at all.

Table 24. Proportion of respondents using various sources of electricity supply - by location

Survey location	Solar	Generator	Power station	Battery	None
Blacksands	3.8%	2.6%	71.2%	5.2%	22.5%
Chapuis East	0.9%	0.9%	90.6%	0.9%	6.8%
Freswota 1	-	1.2%	96.5%	21.2%	2.4%
URBAN	2.2%	1.9%	81.5%	7.1%	14.2%
Anelghowhat	52.0%	24.1%	-	8.9%	32.9%
Atabulu/Atangurua	18.4%	16.9%	-	-	66.2%
Isini	3.0%	-	86.4%	3.0%	7.6%
Lamen Bay	58.7%	20.6%	1.6%	6.4%	23.8%
Lamnatu	27.7%	3.1%	-	9.2%	60.0%
Levetlis	-	3.3%	-	-	96.7%
Ngala	13.8%	8.6%	1.7%	8.6%	67.2%
Port Narvin	81.4%	14.8%	-	37.0%	11.1%
Port Olry	-	8.5%	89.4%	-	2.1%
Sola	34.9%	52.4%	-	55.5%	3.2%
Umej	38.2%	17.6%	-	-	47.1%
Unpongkor	84.5%	7.9%	-	34.4%	10.9%
Vetumboso	15.4%	3.9%	-	71.8%	20.5%

RURAL	34.3%	14.4%	13.2%	20.5%	31.9%
Total	22.8%	9.9%	37.8%	15.8%	25.5%

Table note: One respondent in Blacksands and one in Freswota 1 said they had access to wind-generated power, but as most areas did not cite this source, we have omitted it from the table. Respondents were able to select more than one power source, so rows may add up to more than 100 per cent. Across the entire sample, 11.9 per cent of respondents listed more than one power source. In some cases, it appears that respondents may have been confused about the power sources being referred to; there is no mains power, for example, in Lamen Bay or Ngala.

Relative to urban areas, rural areas had a much higher rate of use of solar power (34.3 per cent on average), although this varied across locations. For instance, none of the households in Levetlis reported access to solar power, and very few (3.3 per cent) had access to any form of electricity. Access levels also appear to be low in Atabulu/Atangurua (where 66.2 per cent of households reported having no electricity), Ngala (67.2 per cent), and Lamnatu (60.0 per cent).

Qualitative insight: High electricity costs a barrier for many

The majority of focus group participants in rural areas said that because they did not have electricity, they use dry-cell battery-operated torches, small solar lanterns, and candles to provide light in the evenings. Generators were seen as a luxury item because of the initial purchase cost and ongoing fuel costs. Accordingly, several participants said that only wealthier individuals, businesses, government officers and churches tended to own and operate generators. Participants in Sola and Middle Bush said they used to have a small community generator to power shared facilities, but the generator had ceased operating due to technical failures and lack of expertise and financial resources to keep it going. Solar panels were seen by participants as a more affordable alternative as their main costs were one-off and up-front.

In urban Efate, many participants complained that although their electricity supply from UNELCO was good, it was costly. For example, participants from Freshwota 1 reported that electricity bills, which are in the range of 5,000 to 10,000 vatu per month, are the most costly item of household expenditure.

'Electricity is in every house. Service is good. But cost is a big problem. The bill comes at the end of every month and is expensive, whereas the water bill comes at end of every three months but is still affordable. For example, in my home the electricity bill is usually about 7,000Vt-10,000Vt a month. The amount depends on the number of electrical items we have been using and also the number of people. But I think this is still too much to pay in a month.' Household representative, Female focus group, Freshwota 1.

In Santo, participants complained that recent change in service providers has not led to reduced prices.

'The new company promised a cheaper rate to that of UNELCO but this is not happening. Instead it is much, much more expensive compared to UNELCO bills. There are a lot of things that we must pay like property tax, land lease, water bills, school fees, loans and then high electricity. A lot of us cannot afford to pay all these.' NGO/Community/Church representative, Female Focus Group, Chapius East.

We also asked whether they relied on each source of electricity 'most of the time' or only 'sometimes'. As the majority of the sample (88.1 per cent) listed only one source of electricity, this was the source they used most of the time. The most common combination (reported by 4.6 per cent of the sample) was solar power with batteries, followed by solar power and generators (2.4 per cent), grid supply with batteries (2.1 per cent), and generators with batteries (1.3 per cent). Despite these patterns of supply supplementation, many people reported using batteries as a primary source of power: of those who said they sourced power from batteries, the majority (66.8 per cent) said they used these 'most of the time'. In contrast, of those who

accessed power from generators, the majority (62.9 per cent) used them only sometimes, likely because of the high cost of fuel, and because the generators served only as a back-up supply.

What types of electric appliances do households have?

As shown in Table 25, appliance ownership differed significantly across survey locations. In general, many more respondents in urban areas owned electric appliances such as televisions, radios, computers, and fridges than did those in rural areas. The one exception was mobile phones, which the majority of all households possess, regardless of their location. These appliance ownership trends highlight the significant penetration of mobile telephony throughout Vanuatu, and the contrasting lag in other means of communication. The very limited ownership of computers outside urban areas, in particular, may act as a constraint on the proliferation of internet services, unless more affordable (and likely shared) points of access are developed.

Table 25. Types of electric appliances that households own - by survey location

Survey location	TV	Radio	Computer	Fridge	Fixed line TVL phone	Mobile phone
Blacksands	61.1%	51.4%	10.7%	19.8%	2.3%	96.3%
Chapuis East	83.2%	64.6%	7.1%	36.3%	2.7%	100.0%
Freswota 1	86.1%	66.4%	36.2%	58.2%	8.1%	95.5%
URBAN	72.2%	58.0%	14.8%	32.1%	3.6%	97.0%
Anelghowhat	23.7%	18.1%	5.6%	-	-	97.3%
Atabulu/Atangurua	6.9%	6.8%	-	2.3%	-	90.9%
Isini	31.1%	45.7%	3.2%	9.8%	1.6%	93.4%
Lamen Bay	3.6%	16.3%	1.8%	7.2%	-	89.1%
Lamnatu	3.8%	9.5%	1.9%	-	-	100.0%
Levetlis	-	24.0%	-	-	-	92.0%
Ngala	4.0%	8.0%	4.0%	4.0%	4.0%	96.0%
Port Narvin	20.3%	20.3%	-	2.0%	-	89.7%
Port Olry	19.6%	32.6%	-	2.2%	-	100.0%
Sola	42.5%	31.1%	3.2%	4.9%	1.6%	91.7%
Umej	37.8%	24.0%	-	-	-	96.4%
Unpongkor	13.4%	25.1%	-	5.0%	1.7%	95.1%
Vetumboso	2.0%	29.4%	-	-	-	92.2%
RURAL	17.5%	23.6%	1.9%	3.3%	0.7%	94.4%
Total	39.3%	37.3%	7.1%	14.9%	1.9%	95.5%

Table note: Respondents could select as many appliances as applicable, so row totals may add to more than 100 per cent. Across the whole sample, the majority of respondents said they owned at least two appliances (50.8 per cent), but the proportion of households with multiple appliances was much higher in urban areas (81.3 per cent) than in rural areas (30.6 per cent).

How much do households spend on electricity?

As may be expected given the different sources of electricity available, and different types of electric appliances owned, household electricity expenditure also differed significantly across survey locations. For instance, most households in rural areas said they spent less than 2,000 vatu per month on electricity (59.5 per cent), or were unable to say how much they spent (40.5 per cent). In contrast, the majority of urban respondents were able to estimate their monthly expenditure (91.7 per cent). Most urban respondents spent between 1,000 and 3,000 vatu per month (50.9 per cent). However, a sizeable proportion spent over 6,000 vatu per month. These higher rates of electricity expenditure—especially in Blacksands and Freswota 1—likely reflect the greater availability and use of a reliable, grid-sourced electricity supply in these areas, and greater numbers of appliances owned.

Table 26. Proportion of households reporting monthly electricity expenditure levels - by location

Survey location	< VUV1,000V	VUV1,000-2,000	VUV2,000-3,000	VUV3,000-4,000	VUV4,000-6,000	> VUV6,000	Unable / unwilling to say
Blacksands	6.5%	20.8%	31.5%	10.7%	6.5%	19.6%	6.5%
Chapuis East	15.7%	40.7%	20.4%	9.3%	3.7%	7.4%	15.7%
Freswota 1	2.4%	15.5%	19.0%	11.9%	16.7%	31.0%	2.4%
URBAN	8.3%	25.6%	25.3%	10.6%	8.1%	18.6%	8.3%
Anelghowhat	11.8%	11.8%	5.9%	2.9%	5.9%	14.7%	11.8%
Atabulu/ Atangurua	40.0%	10.0%	10.0%	-	10.0%	-	40.0%
Isini	1.7%	18.3%	30.0%	30.0%	8.3%	10.0%	1.7%
Lamen Bay	48.8%	4.7%	7.0%	2.3%	4.7%	7.0%	48.8%
Lamnatu	19.2%	11.5%	-	-	-	7.7%	19.2%
Levetlis	-	100.0%	-	-	-	-	-
Ngala	56.3%	6.3%	-	6.3%	-	-	56.3%
Port Narvin	58.3%	16.7%	6.3%	4.2%	2.1%	6.3%	58.3%
Port Olry	60.9%	28.3%	6.5%	2.2%	-	2.2%	60.9%
Sola	32.1%	32.1%	10.7%	8.9%	7.1%	5.4%	32.1%
Umej	23.1%	7.7%	7.7%	-	23.1%	7.7%	23.1%
Unpongkor	59.6%	13.5%	7.7%	1.9%	1.9%	9.6%	59.6%
Vetumboso	61.0%	32.2%	-	-	1.7%	-	61.0%
RURAL	40.5%	19.0%	8.9%	6.3%	4.4%	6.1%	40.5%
Total	26.6%	21.8%	15.9%	8.2%	6.0%	11.5%	26.6%

How important is electricity?

As with shipping services, we asked respondents how important they thought electricity was for business, health, and education. Across the sample, the majority of households thought that electricity was important or very important in all three domains. However, there were some modest but significant differences across survey locations. In particular, urban respondents were more likely (90.7 per cent) than rural respondents (79.4 per cent) to view electricity access as important or very important for business purposes.

Table 27. Importance of electricity services for different purposes - by location

Survey location	Important or very important for business	No or low importance for business	Important or very important for health	No or low importance for health	Important or very important for education	No or low importance for education
Blacksands	91.2%	8.8%	84.6%	15.5%	91.6%	8.4%
Chapuis East	86.2%	9.2%	93.6%	4.6%	95.4%	2.7%
Freswota 1	95.4%	4.7%	84.8%	15.2%	97.7%	2.3%
URBAN	90.7%	8.0%	86.9%	12.6%	93.9%	5.7%
Anelghowhat	69.5%	17.4%	80.9%	7.4%	82.3%	5.9%
Atabulu / Atangurua	78.1%	20.3%	79.7%	20.4%	89.1%	11.0%
Isini	95.3%	1.6%	95.3%	1.6%	96.9%	-
Lamen Bay	86.7%	13.4%	93.6%	6.4%	98.4%	1.6%
Lamnatu	75.0%	8.9%	66.0%	19.6%	76.8%	16.1%

Levetlis	89.6%	10.3%	80.0%	16.7%	86.7%	13.3%
Ngala	70.2%	12.3%	89.5%	10.5%	89.4%	10.5%
Port Narvin	78.4%	21.6%	82.3%	17.7%	88.2%	11.8%
Port Olry	97.9%	-	97.9%	-	97.9%	-
Sola	81.9%	18.0%	83.6%	16.4%	93.5%	6.6%
Umej	71.0%	13.0%	83.9%	3.2%	77.4%	9.7%
Unpongkor	93.4%	4.9%	91.9%	8.0%	96.7%	3.2%
Vetumboso	50.8%	41.2%	79.7%	18.8%	90.6%	7.9%
RURAL	79.4%	14.6%	85.1%	11.4%	90.1%	7.1%
Total	83.6%	12.1%	85.8%	11.8%	91.5%	6.6%

Table note: Respondents were asked to select from the following responses: very important, important, a little bit important, not at all important, and no response/no opinion. Because this table does not report the small proportion of 'no opinion' answers, adjacent columns for each domain (business, health, and education) do not necessarily add to 100 per cent.

Qualitative insight: Electrical appliances seen as key for community development

Many focus group participants mentioned that they thought electricity was essential for enabling the use of a number of important household appliances, including mobile phones (which need recharging), TV, DVDs, stereos, and fridges. Male focus group participants in Tanna commented that electricity would help students to be able to watch good programs on TV and use light to study at night in their homes and at school.

Additionally, participants thought that increased electricity access and affordability could help improve critical health and education services by enabling greater use of computers, faxes, photocopiers, printers, and refrigerators at schools and clinics.

'Electricity is needed in our clinic. The reason is that we have vaccines that need to be stored in cool temperatures. Because there is no electricity to refrigerate these vaccines, many people must travel to Sola or Santo to get them... Electricity would help a lot in the schools and clinic. After meeting these two priorities, we can then move on to think about getting electricity in other places, like people's homes.' NGO representative, Female focus group, Vetumboso.

Participants also saw the potential for electricity to assist in economic development. In Levetlis, male focus group participants thought that a reliable electricity supply would enhance weaving productivity in the area, leading to economic gains. In Tanna, male focus group participants thought that improved electricity supplies would open doors to many more businesses. For instance, the shops could sell frozen goods like chicken wings/drum sticks and ice creams (both of which are popular in the area).

6. Telephones

The largest section of our survey focussed on telephone access, ownership, use, and impacts. Although we focussed on both fixed and mobile telephones, it is evident that the latter are far more prevalent and important for people throughout Vanuatu. Four out of five survey respondents owned a mobile phone. Most people view the impacts of increased telephone access in their areas as having been broadly positive, although important social concerns remain. Below, we discuss these results, and how they vary across survey locations, in more detail.

Phone access and ownership

Most survey areas had both fixed and mobile coverage, as shown in Table 28. However, the majority (99.4 per cent) of survey respondents said their household had regular access only to a mobile phone, while just a small number had a private fixed line (4.1 per cent). Nevertheless, as shown in the table, only a small proportion of households said they travelled to use a fixed line telephone, often walking more than a kilometre to do so. Unsurprisingly given the high rate of mobile phone ownership, very few people (1.8 per cent) said they travelled to obtain access to a mobile phone (although in some areas, particularly Vetumboso, residents need to travel to actually use the phones that they own due to the limited mobile phone coverage on the island).

Table 28. Telephone access and ownership - by location

Survey location	Phone services available in area*	Respondents travelling to use a fixed line phone	Usual distance travelled to use a phone	Households with access to a mobile	Households with access to a private fixed line	Households not owning any phones	Households owning more than 2 phones
Blacksands	High F	3.1%	Walk < 1km	100.0%	2.2%	2.2%	53.8%
Chapuis East	High F	-	-	100.0%	-	0.9%	52.3%
Freswota 1	High F	1.2%	Walk < 1km	100.0%	5.8%	2.4%	68.3%
URBAN	-	1.9%	-	100.0%	2.3%	1.9%	56.3%
Anelghowhat	Medium	1.3%	Next door	96.3%	30.0%	3.8%	36.4%
Atabulu/ Atangurua	High M	3.1%	Walk > 1km	100.0%	-	14.3%	25.4%
Isini	High F	3.0%	Walk < 1km	98.4%	1.5%	12.3%	27.6%
Lamen Bay	High M	1.6%	Walk < 1km	100.0%	-	11.7%	16.7%
Lamnatu	High M	-	-	100.0%	-	13.1%	3.2%
Levetlis	High M	-	-	100.0%	-	18.5%	7.4%
Ngala	High M	37.9%	Next door	98.1%	-	19.0%	16.7%
Port Narvin	None	98.2%	Walk > 1km	100.0%	-	11.3%	24.6%
Port Olry	Medium	-	-	100.0%	-	2.2%	15.5%
Sola	High M	-	-	100.0%	-		41.8%
Umej	Medium	11.8%	Next door	97.1%	14.7%	14.7%	11.8%
Unpongkor	High F	9.4%	Next door	100.0%	1.6%	4.8%	40.2%
Vetumboso	Low	85.9%**	Walk > 1km	98.6%	-	20.3%	9.4%

RURAL	-	20.6%	-	99.1%	4.1%	10.6%	23.0%
Total	-	13.87%	-	99.4%	3.5%	7.4%	35.4%

Table notes:

* High F = Two mobile service providers operating, one offering fixed lines; High M = Two mobile service providers operating; Medium = One service provider operating; Low = One mobile service provider operating with poor coverage; None = no service coverage

** It is likely that respondents in this area were referring to mobile phones, not landlines: Vetumboso does not have any fixed line services, and there is no mobile phone coverage in the village. Residents must walk some distance to obtain Digicel mobile phone reception.

Qualitative insight: People may have access, but it is not necessarily reliable…

Participants in focus groups in a most areas (Lenakel, Middle Bush, Anelghowhat, Umej, Ngala, Port Olry, Sola, Vetumboso, Atangura/Atabulu, Unpongkor, Port Narvin and Levetlis) reported dissatisfaction with coverage or reliability. Several group participants reported that their mobile coverage was only really reliable within the vicinity of a mobile transmission tower. Many said they had to walk for some distance, or move around their village a lot, in order to find sufficient coverage to make a call. Some participants in Umej and Anelghowhat said they sometimes had to take a canoe a little way out to sea to find a reliable spot to from which to call. In Vetumboso, Atangura/Atabulu, and Levetlis, participants said that although many people owned phones, problems with coverage were greatly limiting their usefulness.

'We don't have Digicel right at home so we have to walk a long way every time we want to make a call. But when Digicel first launched its service in Sola in 2010 many people from this village bought Digicel phones because it was cheap, so parents and their children and many young people now have phones.' Male focus group, Vetumboso.

Participants also perceived there to be differences in the reliability and coverage of the two service providers. For example, in places like Lenakel, Middle Bush and Sola, where both providers operate, participants in both male and female focus groups said although Digicel had wider network coverage than TVL, its service was often unreliable. Such concerns were also reflected in 14 of the 31 small to medium business interviews, which indicated that problems with both TVL and Digicel services were posing a constraint to business development.

'I use mostly mobile to communicate for this small business… However, mobile communication is still unreliable and inconsistent… Digicel stopped working for many months and many people switched to TVL. I have two SIM cards and used to use both, but now I mostly only use TVL when Digicel stopped working' Small business owner, Sola.

'I use mobile for all my communication needs and it is the only way of communicating with my suppliers…despite the lack of better network coverage in the area and the fact that I need to climb uphill to access the network…to make the necessary calls so that my retail store cargo arrives in the next shipment or flight … If network coverage could be improved in the area, the hassle of going up and downhill would be removed'. Small-medium business owner, Port Narvin.

Although few participants discussed the perceived causes of reliability problems, several focus group members in Atangura/Atabulu and Chapius East mentioned natural weather events (like hurricanes) as a contributing factor. Participants in Vetumboso said they had experienced a long disruption to the Digicel network due to fuel shortages and a delay in the shipment of fuel drums to Sola to operate the central satellite tower. Such problems are exacerbated by the infrequency of shipping services to their area.

The average (median) household owned two phones, with the majority (78.8 per cent) owning between 1 and 4. Most households had first obtained a mobile phone more than two years ago (56.4 per cent), with only a small proportion (8.6 per cent) having obtained a mobile phone for

the first time in the past year. A small number of respondents said their household did not own any phones (7.0 per cent).

When we asked respondents if they personally owned a mobile phone, the majority (80.7 per cent) said yes. Most had bought their phones themselves (82.6 per cent), and the remainder had been given phones by their families (or, in five cases, by their workplace). The average reported phone purchase cost was 4,662 vatu, although there was substantial variation in this price (ranging from 100 to 100,000 vatu, around a median of 2,500 vatu), likely reflecting variation in place and time of purchase and in phone capabilities (for instance, phones are often available for low prices when bought as part of a phone service provider deal, but these tend to be very simple models; models with internet capability are far more expensive). Of those respondents who did not own a mobile, approximately half (55.0 per cent) said they borrowed one (for free) to use when necessary, while the remainder said they simply did not use a mobile.

Personal phone ownership was significantly lower among respondents without any formal education (only 50 per cent of whom had their own phone), and among respondents over the age of 50 (62 per cent of whom had their own phones). In addition, as shown in Table 29, urban respondents were more likely to own a mobile than rural respondents, with some small but significant differences between survey locations. Although Nokia phones were the most prevalent brand across the sample, this varied across survey locations—for instance, in Vetumboso Motorola was the most frequently owned brand, and in Anelghowhat and Umej the majority of respondents owned phones with other brands. Of these 'other' brands, the most frequently cited across the sample were Alcatel and Coral. A few people also owned LG and ZTE branded phones. These differences between areas may reflect different promotions run by suppliers, or deals offered by the mobile service providers for new users.

Table 29. Ownership of various phone brands – by location

Survey location	Respondents owning mobiles	Phone owners with Nokia brand	Phone owners with Samsung brand	Phone owners with Motorola brand	Phone owners with Other brand
Blacksands	84.1%	58.3%	8.9%	8.9%	24.0%
Chapuis East	94.9%	59.5%	5.4%	16.2%	18.9%
Freswota 1	87.2%	58.7%	5.3%	8.0%	28.0%
URBAN	87.6%	58.7%	7.1%	10.8%	23.3%
Anelghowhat	87.5%	8.6%	-	8.6%	82.9%
Atabulu / Atangurua	64.6%	47.6%	23.8%	-	28.6%
Isini	70.3%	60.5%	7.0%	18.6%	14.0%
Lamen Bay	73.0%	63.0%	17.4%	4.3%	15.2%
Lamnatu	73.8%	81.3%	2.1%	6.3%	10.4%
Levetlis	75.9%	68.2%	18.2%	-	13.6%
Ngala	51.9%	66.7%	7.4%	14.8%	11.1%
Port Narvin	79.2%	76.2%	4.8%	9.5%	9.5%
Port Olry	91.1%	73.2%	9.8%	12.2%	4.9%
Sola	96.8%	47.5%	23.0%	4.9%	24.6%
Umej	70.6%	37.5%	-	-	62.5%
Unpongkor	92.1%	58.6%	5.2%	6.9%	29.3%
Vetumboso	66.2%	40.8%	44.9%	2.0%	12.2%
RURAL	76.7%	53.6%	12.7%	7.0%	26.7%
Total	80.7%	55.6%	10.5%	8.5%	25.3%

Use of different mobile service providers also significantly differed across survey locations, as shown in Table 30. While the majority of respondents across all areas used Digicel, respondents in Anelghowhat and Umej used only TVL (as noted at the beginning of this section, Digicel

services are not currently available in these areas), and a reasonable proportion of respondents used both providers (11.3 per cent).

Table 30. Use of mobile service providers – by location

Survey location	Digicel	TVL	Both
Blacksands	64.9%	23.6%	11.5%
Chapuis East	68.2%	23.6%	8.2%
Freswota 1	57.3%	20.0%	22.7%
URBAN	64.4%	22.9%	12.8%
Anelghowhat	-	100.0%	-
Atabulu/Atangurua	66.7%	4.8%	28.6%
Isini	59.1%	27.3%	13.6%
Lamen Bay	89.4%	6.4%	4.3%
Lamnatu	95.7%	4.3%	-
Levetlis	81.8%	13.6%	4.5%
Ngala	92.3%	7.7%	-
Port Narvin	85.7%	4.8%	9.5%
Port Olry	100.0%	-	-
Sola	41.0%	27.9%	31.1%
Umej	-	100.0%	-
Unpongkor	77.6%	6.9%	15.5%
Vetumboso	77.1%	10.4%	12.5%
RURAL	64.0%	25.7%	10.3%
Total	64.2%	24.6%	11.3%

Phone uses

To find out how respondents were using their mobiles, we asked how frequently they performed a variety of different functions on their phones. As shown in Table 31, respondents most frequently used their phones to make or receive a call. Other frequent uses included calling someone back, sending an SMS, giving a 'missed call' or sending a message to get the recipient to call back, and using the phone as a torch. When asked to explain what other functions they used their phone for (i.e. when they used it for 'something else'), the use respondents cited most frequently (27.9 per cent) was games. Other less frequent phone uses were for checking the time or date, as a camera or video, as a calculator, and as an alarm. Urban respondents were significantly more likely than rural respondents to use their mobile phones for calling someone back (93.7 per cent vs. 81.0 per cent), sending 'please call me back' messages (75.8 per cent vs. 64.0 per cent), playing music or the radio (69.5 per cent vs. 44.9 per cent), sending an SMS (88.9 per cent vs. 79.7 per cent), or 'something else' (71.1 per cent vs. 59.6 per cent). This may suggest changing patterns in mobile phone use; in previous years we identified that rural respondents were high users of the 'please call back' service, resulting in a form of income transfer when their wealthier urban families paid to return the calls. It may be the case that these transfers are now happening within urban areas as well, and that rural users are spending more on initiating calls themselves. However, as noted later in this section, rural users still appear to spend less on their phones than do urban users.

Table 31. Popular ways of using mobile phones

Use	A lot	Sometimes	Total
Make call	33.5%	45.3%	78.8%
Receive call	31.7%	46.0%	77.7%

Call back	16.0%	52.4%	68.4%
Send SMS	36.2%	30.0%	66.2%
Give missed call	14.2%	44.6%	58.8%
Torch	41.3%	13.1%	54.4%
Send please call message*	16.2%	37.4%	53.6%
Play radio/music	22.7%	20.1%	42.8%
Something else	18.2%	13.8%	32.0%
Access internet	2.2%	2.5%	4.7%

*Note: This 'plis call me' service is only offered by Digicel. Several focus group participants commended Digicel for having this feature, as they found it useful and economical. It enables users to send a cost-free message to another number, so that the recipient of the message will bear the cost of getting in contact (i.e. by calling the message-sender back)

Phone battery charging

Many respondents charge their phones at home, and do not pay others, or request payments from others, to have a battery charged. However, there are distinct differences in charging patterns across urban and rural locations.

Where do people charge their phone batteries?

As shown in Table 32, the majority (80.5 per cent) of urban respondents charge their phones at their own homes, and many also have the opportunity to charge them at their workplaces (12.6 per cent). In contrast, less than half of rural respondents (40.2 per cent) said they charged their phones at home, with nearly as many going to other people in their area to request a charge, either for a fee (20.6 per cent) or for free (17.5 per cent). Very few respondents appear to be using vehicles, community power sources, or Digicel towers for battery charging.

Table 32. Proportion of respondents charging phone batteries at various locations

Location	Urban	Rural	Total
Home	80.47%	40.16%	54.64%
Other people for a fee/payment	5.12%	20.6%	15.04%
Other people for free	5.81%	17.47%	13.28%
Work	12.56%	3.0%	6.43%
Government office for free	-	1.43%	0.92%
Community power source for a fee/payment	-	1.3%	0.84%
Community power source for free	0.23%	0.78%	0.58%
Digicel tower for free	0.7%	0.52%	0.58%
In vehicle	0.23%	0.39%	0.33%

Reflecting the differences in available and preferred phone charging locations shown in Table 32, there were significant differences in the distances respondents from different survey locations routinely travelled to charge their phone batteries. As indicated in Table 33, the majority of urban residents said they did not need to travel at all, whereas nearly half of rural respondents (47 per cent) were travelling some distance to charge their phones—in a few cases walking more than a kilometre (especially notable in Levetlis, which is remote and has limited electricity access; in such areas, people may walk to the houses of others who have generators or other reliable power sources, and pay to charge phones). It may be the case that this proportion is understated, however, given that in many rural areas few households would have their own, reliable power source.

Table 33. Proportion of respondents travelling varying distances to charge phone batteries

Survey location	Don't travel	Next door	Few houses away	Short walk <1km	Long walk >1km
Blacksands	79.2%	8.0%	9.9%	1.4%	0.5%
Chapuis East	94.7%	4.4%	-	-	-
Freswota 1	98.8%	1.2%	-	-	-
URBAN	87.5%	5.7%	5.2%	0.7%	0.2%
Anelghowhat	46.5%	29.6%	12.7%	5.6%	5.6%
Atabulu/Atangurua	37.3%	45.1%	11.8%	3.9%	2.0%
Isini	90.0%	6.0%	4.0%	-	-
Lamen Bay	78.8%	13.5%	1.9%	3.8%	1.9%
Lamnatu	17.6%	29.4%	13.7%	33.3%	2.0%
Levetlis	9.1%	45.5%	22.7%	9.1%	13.6%
Ngala	51.6%	12.9%	25.8%	6.5%	3.2%
Port Narvin	54.3%	34.8%	4.3%	4.3%	2.2%
Port Olry	100.0%	-	-	-	-
Sola	66.7%	16.7%	8.3%	8.3%	-
Umej	60.0%	16.0%	8.0%	8.0%	8.0%
Unpongkor	43.1%	39.7%	12.1%	5.2%	-
Vetumboso	16.0%	40.0%	38.0%	4.0%	2.0%
RURAL	52.8%	25.5%	11.9%	7.0%	2.5%
Total	66.6%	17.6%	9.2%	4.5%	1.6%

How much do people get paid or pay to charge phone batteries?

Although the majority of respondents do not pay or request payment for charging phone batteries (particularly in urban areas), in rural areas there appear to be many commercial exchanges involving phone charging. Respondent responses suggest the 'going rate' in several locations (e.g. Anelghowhat, Levetlis, Umej, and Vetumboso) is 100 vatu per charge, although some people pay less. In other locations, the going rate is less than 100 vatu (Atabulu/Atangurua, Lamnatu, and Unpongkor). Very few people paid more than 100 vatu for a charge (approximately 1 per cent across the full sample).

Table 34. Proportion of respondents being paid or paying to charge phone batteries

Survey location	Pay <100VT per charge	Pay 100VT + per charge	Don't pay to charge	Get paid < 100VT per charge	Get paid 100VT + per charge	Offer charge for free
Blacksands	7.5%	3.8%	88.8%	6.0%	2.7%	75.0%
Chapuis East	6.1%	0.9%	93.0%	3.5%	0.9%	43.0%
Freswota 1	-	-	100.0%	-	-	83.8%
URBAN	5.6%	2.2%	92.2%	4.0%	1.6%	67.2%
Anelghowhat	8.0%	42.7%	49.3%	14.3%	35.7%	14.3%
Atabulu/Atangurua	52.9%	3.9%	43.1%	16.7%	-	37.5%
Isini	4.8%	8.0%	87.1%	6.5%	1.6%	38.7%
Lamen Bay	-	-	100.0%	9.3%	4.7%	72.1%
Lamnatu	59.6%	8.8%	31.6%	29.0%	3.2%	12.9%
Levetlis	4.5%	95.4%	-	33.3%	-	33.3%
Ngala	-	6.9%	93.1%	9.1%	13.6%	54.5%
Port Narvin	13.0%	21.7%	65.2%	12.5%	3.1%	43.8%
Port Olry	-	-	100.0%	2.2%	-	53.3%

Sola	5.0%	1.7%	93.3%	-	-	63.4%
Umej	3.3%	23.3%	73.3%	5.0%	30.0%	5.0%
Unpongkor	38.3%	5.0%	56.7%	23.9%	-	45.7%
Vetumboso	2.0%	70.6%	27.5%	5.6%	50.0%	-
RURAL	16.4%	19.4%	64.2%	11.2%	8.8%	40.3%
Total	12.2%	12.6%	75.1%	7.8%	5.4%	52.9%

We also asked respondents to estimate how much they spent on charging their phone batteries in a month, considering the average number of times they would need to re-charge the battery and the cost per charge. Of respondents who did pay to charge their phones at least sometimes (29 per cent of respondents), the majority said they spent less than 1,000 vatu per month (57.9 per cent). A further 16.5 per cent spent between 1,000 and 2,000 vatu, with only a small number (7.2 per cent) spending more than 2,000 vatu per month.

Phone expenditure

When asked to consider how much they spent on all their phone costs each month, very few respondents (less than 9 per cent of the total sample) reported paying for fixed line phones. Of those who did, the majority paid less than 1,000 vatu per month (73.1 per cent of those paying for private lines, and 84.5 per cent of those paying to use public phones).

In contrast, almost all respondents said mobile phone costs were part of their regular monthly expenditure. Just over half of all respondents said they were spending less than 1,000 vatu per month on their mobile phones, but this varied widely between survey locations, as shown in the table below. In general, a greater proportion of respondents in urban areas were spending higher amounts per month (i.e. more than 3,000 vatu, which amounts to approximately 7 per cent of the mean reported monthly income for the total sample) compared to those in rural areas. A notable exception was Isini, where nearly half of the respondents were spending over 3,000 vatu per month.

Table 35. Proportion of respondents spending various amounts per month on mobile phones

Survey location	< VUV500	VUV500-1,000	VUV1,000-2,000	VUV3,000-4,000	> VUV4,000
Blacksands	15.4%	27.1%	22.0%	12.1%	23.4%
Chapuis East	20.9%	29.1%	30.0%	11.8%	8.2%
Freswota 1	11.3%	38.8%	26.3%	11.3%	12.5%
Urban	16.1%	30.0%	25.0%	11.9%	17.1%
Anelghowhat	11.8%	32.9%	21.1%	7.9%	26.3%
Atabulu/ Atangurua	45.1%	29.4%	21.6%	2.0%	2.0%
Isini	11.7%	23.3%	20.0%	20.0%	25.0%
Lamen Bay	18.9%	37.7%	22.6%	5.7%	15.1%
Lamnatu	21.3%	49.2%	19.7%	4.9%	4.9%
Levetlis	13.0%	17.4%	47.8%	8.7%	13.0%
Ngala	38.5%	46.2%	5.1%	2.6%	7.7%
Port Narvin	62.2%	22.2%	11.1%	2.2%	2.2%
Port Olry	26.7%	15.6%	31.1%	13.3%	13.3%
Sola	29.8%	15.8%	36.8%	8.8%	8.8%
Umej	28.1%	31.3%	21.9%	6.3%	12.5%
Unpongkor	65.0%	20.0%	3.3%	5.0%	6.7%
Vetumboso	29.2%	50.0%	16.7%	4.2%	-
Rural	30.6%	30.5%	20.5%	7.2%	11.2%

Total	25.0%	30.3%	22.2%	9.0%	13.5%

Qualitative insight: People willing to pay, but still think mobiles are expensive

Participants in 14 of the 31 focus groups and 21 of the 31 semi-structured interviews indicated that the cost of phones (including the cost of charging phone batteries) was an important consideration for them. The majority of both males and females said that they thought mobile phones were costly, for both business and personal use. Many comments were focussed on the value-for-money provided by prepaid phone cards. For instance, participants expressed dissatisfaction about the limited call time that phone cards offered (e.g. only a few minutes for 200 vatu), and the cost of charging their phone batteries. In Levetlis (Pentecost), Sola, and Vetumboso (Vanua Lava), a profit margin of 50 vatu is added by vendors to the TVL and Digicel market prices for prepaid cards. In addition, because many people in these areas do not have their own source of electricity, they must pay fees ranging from 50 to 100 vatu to charge their phone batteries.

'*The cost of telecommunications is too high. Previously refill cards were selling at 250vt and 260vt. Sometimes people don't use their mobiles as they have not got sufficient funds to purchase a credit refill. They say they will use their phones more often if costs are reduced*'. Female focus group, Levetlis.

'People are spending more on [phone] credit refill cards than on food. In some homes you will find families eating dry food like tapioca [cassava] because they have spent all their money on phone credit. Not only the parents but also the children own mobile phones. So in one household you may find every member with a mobile phone'. Household representative, Female focus groups, Chapius East.

A number of participants also reported cost differences between services offered by Digicel and TVL. Some focus group participants (in Lenakel, Middle Bush, Anelghowhat, Freshwota 1, and Chapius East) thought that calls from Digicel numbers to Digicel numbers and from Digicel to TVL numbers were considerably more expensive than calls from TVL numbers to Digicel numbers or TVL to TVL numbers. In Levetlis, male focus group participants commented that although TVL seemed to be cheaper, (credit does not run out so quickly), Digicel had service all around the island (except for some remote places), and thus was preferred as a 'more reliable' service provider.

'Some people like me prefer TVL to Digicel because TVL credits are cheaper. TVL sells 100vt credit and Digicel doesn't…However, calling TVL to Digicel is cheaper than calling Digicel to TVL and TVL credits are better, they last longer than Digicel's… Phone credit refill cards are too expensive for people without paid jobs... I pay around 1000vt per day on credits if I want to make an important call.' NGO and Business representative, Female focus group, Chapius East.

In areas such as Vetumboso, Anelghowhat, Umej, and Port Olry, where there is only one service provider, participants thought that costs were higher for them due to limited service competition. Several participants also mentioned that they thought fixed lines were the least expensive option, and that they would like greater access to these lines from TVL (both private lines, and public phones in villages). In some places, participants said that their village phones had been removed, and that the number of TVL fixed lines had decreased with the advent of mobile communications.

'Telecommunication is costly but I still use it because mobile is now a common source of communication, and the government wants us to use it. There are no TVL fixed landlines these days. Also, even Digicel is unreliable - its network coverage/reception is currently down. It's expensive, but I still use it for my business to call to a customer or agent that uses Digicel. But otherwise I still use my TVL to call Digicel numbers. If both cost and reliability were improved this would increase calls made to both Digicel and TVL phones'. Small business owner, Male semi-structured interview, Sola

However, eight business owners (in Anelghowhat, Umej, Chapius East, Port Olry, Port Narvin, Unpongkor, and Atangura/Atabulu) said they thought the cost of mobile phones was acceptable or affordable given the huge value of mobile communication for their business—in fact, they likely could not remain in business without it.

Phone communication topics

We asked respondents how often they used public fixed line, private fixed line, and mobile telephones to communicate about various topics (business, education, health, emergency situations) or to talk with families and friends. Reflecting the higher rates of access to mobile phones compared to access to fixed lines, a much greater proportion of respondents used mobile phones 'rarely', 'sometimes', or 'often' for each of the communication purposes we asked about.

Public fixed lines

In many survey locations none of the respondents used public fixed line phones for any of these purposes, or did so only rarely. Exceptions were in Anelghowhat, Isini, and Umej, where a sizeable group of respondents sometimes or often used public phones for one of these purposes (ranging from 6.3 per cent to 22.6 per cent of local respondents, depending on purpose). These respondents were most likely to use public phones for talking with family and friends (15.8 per cent of respondents in Anelghowhat, 22.6 per cent in Isini, and 12.5 per cent in Umej).

Private fixed lines

The pattern of use for private fixed line phones was very similar to that for public phones: in many areas private fixed lines are never or only rarely used, with the exceptions being Anelghowhat, Isini, Umej, and Freswota 1.

Rates of public and private fixed line use were similar for all communication purposes in Isini, ranging from 6.4 per cent to 12.9 per cent. In contrast, a greater proportion of respondents in Anelghowhat and Umej sometimes or often use private fixed lines than use public fixed lines. For example, 35.6 per cent of respondents in Anelghowhat and 31.3 per cent in Umej use private fixed line phones for talking with family and friends—more than twice as many as use public fixed lines for these purposes.

A small proportion of residents in Freswota 1 also use private fixed line phones for a variety of purposes: 10.1 per cent used fixed lines for talking about business, 5.1 per cent for talking about education (e.g. calling a school), 8.8 per cent for talking about health (e.g. calling a nurse), 7.6 per cent for communication in emergencies, and 10.1 per cent for talking with family and friends.

Mobile phones

Across all areas, the majority of respondents said they used mobile phones (even if only on rare occasions) for all of the communication purposes we asked about. For talking about business, health, education, or emergencies, the largest portion of respondents (ranging from 30.1 per cent for business to 45.2 per cent for emergencies) said they used mobiles 'sometimes'. For talking with family and friends, the majority of respondents (60.3 per cent) said they used mobiles'often'.

However, as shown in Table 36, respondents in some locations used mobiles to talk about various communication topics significantly more frequently than did respondents in other locations. For instance, significantly more urban respondents than rural respondents often use their mobiles to talk with friends and family. In contrast, significantly more rural respondents than urban respondents often use mobiles to talk about education and health.

Table 36. Proportion of respondents using mobile phones for business, education, or health

Survey location	Never/Rarely use for business	Often use for business	Never/Rarely use for education	Often use for education	Never/Rarely use for health	Often use for health
Blacksands	46.7%	26.4%	39.5%	18.8%	37.5%	20.8%
Chapuis East	48.6%	12.8%	37.2%	15.0%	43.5%	12.0%
Freswota 1	46.3%	15.0%	43.8%	13.8%	32.6%	15.0%
Urban	47.1%	20.5%	39.6%	16.8%	38.1%	17.3%
Anelghowhat	36.6%	23.9%	43.4%	11.8%	32.0%	8.0%
Atabulu/Atangurua	64.7%	15.7%	47.1%	19.6%	52.0%	18.0%
Isini	61.9%	25.4%	30.2%	17.5%	45.5%	20.0%
Lamen Bay	54.7%	26.4%	54.8%	11.3%	35.8%	22.6%
Lamnatu	59.3%	16.9%	59.6%	12.9%	58.3%	8.3%
Levetlis	60.8%	17.4%	34.8%	26.1%	26.1%	30.4%
Ngala	48.7%	7.7%	74.3%	2.6%	35.1%	2.7%
Port Narvin	46.7%	26.7%	47.8%	15.2%	40.0%	15.6%
Port Olry	43.1%	13.6%	24.5%	2.2%	31.1%	2.2%
Sola	41.7%	18.3%	43.3%	11.7%	41.8%	7.3%
Umej	46.9%	9.4%	54.9%	12.9%	43.3%	16.7%
Unpongkor	41.9%	24.2%	22.6%	22.6%	29.5%	19.7%
Vetumboso	83.6%	6.1%	79.6%	-	79.1%	2.1%
Rural	52.6%	18.7%	46.7%	12.7%	42.7%	12.7%
Total	50.5%	19.4%	44.0%	14.3%	41.0%	14.5%

Table note: All differences between urban and rural areas are significant, except for mobile use for business. The proportion of respondents indicating they use mobile phones 'sometimes' for each purpose has not been included in this table, as this was the most frequent response across survey respondents. However, this proportion can be calculated by subtracting the other shown response proportions from 100%.

Table 37. Proportion of respondents using mobile phones in emergencies or with friends / family

Survey location	Never / Rarely use for emergencies	Often use for emergencies	Never / Rarely use to talk with friends & family	Often use to talk with friends and family
Blacksands	58.3%	6.9%	9.2%	78.9%
Chapuis East	38.6%	8.8%	8.0%	52.2%
Freswota 1	60.0%	8.8%	3.8%	77.5%
Urban	53.1%	7.8%	7.8%	71.3%
Anelghowhat	48.7%	2.6%	14.7%	52.0%
Atabulu/Atangurua	44.0%	8.0%	17.7%	47.1%
Isini	25.4%	11.1%	6.5%	79.0%
Lamen Bay	35.9%	24.5%	13.2%	60.4%
Lamnatu	43.5%	8.1%	12.9%	72.6%
Levetlis	30.4%	21.7%	13.0%	60.9%
Ngala	46.1%	-	7.5%	45.0%
Port Narvin	34.7%	13.0%	20.0%	33.3%

Port Olry	28.9%	2.2%	4.4%	64.4%
Sola	43.3%	3.3%	13.3%	58.3%
Umej	51.7%	3.2%	9.7%	25.8%
Unpongkor	25.9%	16.1%	16.4%	47.5%
Vetumboso	91.8%	4.1%	28.6%	28.6%
Rural	42.2%	8.8%	13.8%	53.4%
Total	46.4%	8.4%	11.5%	60.3%

Table note: All differences between urban and rural areas are significant. The proportion of respondents indicating they use mobile phones 'sometimes' for each purpose has not been included in this table, as this was the most frequent response across survey respondents. However, this proportion can be calculated by subtracting the other shown response proportions from 100%.

Phone impacts

Respondents saw telephones as having had a number of impacts on their lives—both positive and negative. We discuss these impacts, and the way they appear to vary across survey locations, below. It is important to note that all of the reported impacts are measured by respondent perceptions, not outside measures; thus, it may be the case that some benefits and costs are either under- or over-stated.

Positive economic, informational, and social impacts of telephony

To assess whether the documented benefits of mobile phones are still felt some time after the initial introduction or expansion of telephony, we asked respondents whether, over the past two years, they felt phones had helped them 'a lot' (large influence), 'somewhat/a little' (some influence), or 'not at all' (no influence) in a number of areas. These areas can be grouped into: obtaining economic benefits; connecting with social networks; and accessing services and information (including both key services, which are of relevance to all households, and specialised services, which are relevant only to households engaged in particular commercial activities).

As shown in Table 38, the majority of respondents felt that phones had helped them either a little or a lot in all three areas (with the exception of specialised services, which were simply not applicable to the majority of respondents). These findings emphasise the important economic and social benefits that telephones bring for communities throughout Vanuatu, and help put the expenditure reported earlier in this section in perspective: for relatively low costs, there are relatively substantial and varied benefits.

The specific areas in which the greatest proportion of respondents felt that phones had helped them a lot in the past two years were in enabling more frequent contact with family and friends (55.2 per cent), and increasing the speed of communication (48.2 per cent). A majority of respondents also felt that phones had helped them a little over the last two years in getting better access to health care services (53.6 per cent), and to increased social support (50.6 per cent).

As an interesting contrast to these results, more than a quarter of respondents felt that phones had not helped them at all in terms of improving communication with government departments (26.8 per cent). This may indicate that the government could do more to improve their use of communication technology to connect with the public.

Table 38. Proportion of respondents reporting levels of help from phones in last two years

Telephones have helped household:	A lot	Somewhat	Not at all	N/A
To obtain economic benefits*	***19.52%***	***32.68%***	***15.54%***	***21.47%***
to increase speed of communication	48.2%	31.7%	3.4%	6.0%

to save travel time	24.6%	40.4%	11.9%	12.5%
to save on travel costs	22.3%	37.7%	12.9%	16.1%
to get increased financial support	19.0%	40.9%	17.7%	11.9%
to reduce time needed for business activities	19.0%	37.5%	16.1%	16.7%
to organise transport and logistics	18.2%	31.7%	14.9%	24.2%
to check product availability before travel	14.8%	26.7%	21.1%	25.6%
to increase sales	13.2%	30.4%	18.3%	27.5%
to reduce business costs	8.0%	26.8%	21.1%	33.6%
to get better market prices	7.9%	23.0%	18.0%	40.6%
To connect with to social networks*	***33.27%***	***40.37%***	***7.73%***	***7.8%***
to make more frequent contact with family and friends	55.2%	28.3%	2.3%	3.2%
to improve group coordination	23.6%	42.2%	12.0%	11.3%
to get increased social support	21.0%	50.6%	8.9%	8.9%
To access key services and information*	***18.06%***	***42.24%***	***13.52%***	***15.44%***
to get quick help in emergencies	24.5%	48.5%	8.9%	7.6%
to get more public record information	28.6%	46.2%	6.7%	7.9%
to get better health access	16.8%	53.6%	10.4%	8.4%
to get info about schools and colleges	13.9%	42.3%	14.8%	17.7%
to talk with government departments	6.5%	20.6%	26.8%	35.6%
To access specialised services and information*	***3.06%***	***15.38%***	***22.36%***	***48.49%***
to get information about crop management	5.3%	23.1%	23.2%	37.6%
to get information about subsidies	3.8%	14.6%	25.1%	45.4%
to get information about new products	3.5%	19.5%	21.7%	44.5%
to understand and meet legal requirements	3.1%	16.2%	22.6%	47.5%
to get information about tides	2.9%	16.4%	19.6%	50.6%
to increase awareness of land and water laws	2.9%	14.9%	22.2%	49.1%
to get access to professional vets etc.	1.6%	8.2%	23.1%	56.6%
to get information about livestock management	1.4%	10.1%	21.4%	56.6%

* Note: Each key area in which telephones have helped (in bold) has been calculated from the average of the specific survey items below it.

When looking at response patterns to these questions on the economic, social, and informational impacts of phones, it is evident that urban and rural respondents differed significantly in how helpful they thought phones had been for them in the past two years. For instance, substantially (more than 16 per cent) more rural respondents than urban respondents thought that phones had not been at all helpful in terms of saving on travel costs, improving communication with government departments, getting information about new products, and organising transport and logistics. Conversely, substantially (more than 16 per cent) more urban respondents than rural respondents thought that phones had been very helpful in improving group communication, increasing the speed of communication in general, and increasing the frequency of contact with friends and family, and had been a little bit helpful in terms of improving access to health services (e.g. being able to phone a nurse for information or advice). These differences suggest that although both urban and rural respondents perceive phones to provide a number of economic, social, and informational benefits, phones play a more integral role for urban residents. In particular, for urban residents phones have become very important for business purposes and for connecting with social networks. Urban residents also appear to be better positioned to access health and government services using their phones—two areas that it could be important to focus on improving in rural locations.

Qualitative insight: Telecoms important for all—but may be more integrated in urban areas, and yet to be fully realised in rural villages

Participants from 12 of the 16 female focus groups and 11 of the 15 male focus groups mentioned telecommunications either as the most important or a highly important community service. These participants said that mobile phones were valuable to them because they are fast and convenient, help reduce travel time and the costs of communication, help to reduce isolation and improve connectivity, enable the distribution of inputs for service delivery, and help businesses grow in and across remote areas. In many discussions, participants talked most explicitly about the benefits at the household and small business level, indicating that with mobile phones they can receive and quickly pass on information about schools (e.g. finding out about school fees, the start and end time for school, and the status of their school children), enquire about or receive cyclone and tsunami warnings, communicate about the status of family and relatives, obtain shipping schedules, and order store goods.

'If the sea is too rough to travel by boat, and ships do not come in as planned; or if going to the other side (Sola) is made impossible by heavy rainfalls; or when someone is sick; then, we will get emergency help through telecommunication. With the new mobile technology, communication is faster, the need to travel is reduced, and we are able to get some form of response regardless of our isolation. People can now order their cargo using mobile phones—they do not need to go to Sola and Santo anymore. They can also now do many other things with mobile phones. If the [phone] service is improved maybe it will bring about more changes in communities.

Previously, older forms of communication, like the shared tele-radio, took a lot of time and only operated at certain times of the day and week. But with new technology like mobile phones, we can own a phone and so we can communicate ourselves quickly in less time. We climb hills to make calls to Sola to order our cargo from Santo. We also communicate for different things. This is why communication is one priority for the community. It encourages change [development]'. Business representative, male focus group, Vetumboso.

Interestingly, there were some differences in the comments made by rural and urban respondents. Respondents from the most remote villages (for example Levetlis, Port Narvin, and Atangura/Atabulu) and villages with fairly recent experiences of mobile phones such as Vetumboso appeared to be more focussed on discussing the benefits and importance of telecommunications than participants from urban sites. This may indicate that mobile phones have become a 'normal' part of life in urban areas, and their benefits have been absorbed to the extent that communication is no longer seen as the most important issue to discuss. In rural areas, however, the various benefits of mobile phones in improving livelihoods and decreasing isolation in emergencies are still being realised, and thus continuing to increase access to telecommunications remains a high priority and frequent topic of community discussions.

These urban-rural differences were also evident when we asked respondents what impact *not* having a phone would have on their economic activities. As shown in Table 39, urban respondents were, on the whole, more likely than rural respondents to perceive the loss of phone access as having a negative impact on their economic activities. Nearly three quarters of urban respondents said they would either be unable to continue their current economic activities, or could do so only with difficulty, if they did not have a phone. However, respondents in some areas did not appear to be so reliant on phones. For instance, more than half of the respondents from Chapuis East, Port Olry, Sola, and Vetumboso said that not having a phone would make no difference to their economic activities. This suggests that households in these areas have not yet fully integrated mobile phone technology in to their business and household activities, and may still be reliant on other forms of communication.

Table 39. Proportion of respondents predicting different impacts on their economic activities of not having access to a phone

Survey location	Unable to continue	Continue with difficulty	No difference
Blacksands	0.9%	82.4%	16.2%
Chapuis East	3.6%	44.6%	50.9%
Freswota 1	1.3%	83.5%	11.4%
Urban	1.7%	72.2%	24.8%
Anelghowhat	3.0%	71.2%	21.2%
Atabulu/Atangurua	6.0%	62.0%	30.0%
Isini	7.9%	60.3%	19.0%
Lamen Bay	5.9%	86.3%	5.9%
Lamnatu	8.5%	49.2%	35.6%
Levetlis	4.3%	73.9%	21.7%
Ngala	12.9%	54.8%	32.3%
Port Narvin	13.0%	47.8%	23.9%
Port Olry	-	26.7%	62.2%
Sola	3.4%	44.8%	50.0%
Umej	7.1%	42.9%	46.4%
Unpongkor	14.5%	75.8%	4.8%
Vetumboso	-	31.3%	62.5%
Rural	6.7%	56.7%	30.8%
Total	4.7%	62.8%	28.4%

Perceived impacts of telephony on other forms of communication

The majority of respondents felt that increased use of phones in recent years had contributed to a reduction in communication via letters, communication through newspapers, and in face-to-face communication. Approximately a third also felt that phones had contributed to a decrease in communication through the village council. However, as shown in Table 40, respondents from different survey locations differed in their perceptions. In particular, more urban respondents than rural respondents perceived phone use to have negatively impacted communication through village councils, face-to-face means, and letters, whereas more rural respondents perceived phone use to have reduced communication through newspapers.

Qualitative insight: Rising use of mobiles leads to decreases in other communication forms, but will not eliminate the importance of face-to-face contact

Participants in many focus groups reported that mobile phones were now the most common or preferred means of communication. Although communication using 'traditional' methods (particularly face-to-face, via local leaders and chiefs, through letters, and via radio) continues, it was reported to be decreasing in Lenakel, Ngala, Atangura/Atabulu, Levetlis, Lamen Bay, Blacksands, Umej, and Vetumboso. In Atangura/Atabulu, participants commented that radio has been almost fully replaced by mobiles, but letters were still used in few cases for ordering trading goods, particularly store items.

'...Mobile phone is now the most convenient way of communicating with the outside world. It decreases the distance between people within our village, on the island, and between other islands and towns in Vanuatu, as well as with the outside world. But it's reducing the amount of face-to-face communication. Face-to-face communication has already been affected in the short time since [mobile phone] introduction last year. At homes, face-to-face communication is even diminishing between parents and their children. This leads to divided

attention, for example children aren't paying attention to their parents during conversations because they have earplugs in to listen to music on their phones, or are playing games, or texting. The same happens between mothers and fathers too. There is disrespect when talking to parents, and people are not communicating face-to-face as much… It looks like we will not really be utilising face-to-face communication as much as we did before. And as other forms of communication become popular, face-to-face communication will become less valuable in some ways'. Participant, Male focus group, Vetumboso.

Nevertheless, despite these changes in communication forms, many focus group participants felt that face-face communication and communication via local leaders was still common, and would persist because it was respected as a culturally appropriate form in village settings.

Table 40. Proportion of respondents perceiving various impacts of phones on other forms of communication

Survey location	Reduced communication through village council	Reduced face-to-face communication	Reduced communication through letters	Reduced communication through newspaper
Blacksands	42.2%	74.3%	94.4%	34.4%
Chapuis East	39.3%	55.8%	86.7%	37.8%
Freswota 1	33.8%	82.5%	93.8%	35.1%
URBAN	39.7%	70.8%	92.1%	35.4%
Anelghowhat	25.4%	36.9%	79.7%	46.5%
Atabulu / Atangurua	31.4%	23.5%	90.2%	74.5%
Isini	38.1%	41.2%	80.9%	58.0%
Lamen Bay	48.1%	42.3%	71.1%	51.9%
Lamnatu	73.8%	73.7%	80.3%	75.0%
Levetlis	8.6%	13.0%	73.9%	68.1%
Ngala	7.5%	12.5%	65.0%	25.0%
Port Narvin	32.6%	28.3%	58.7%	60.9%
Port Olry	11.1%	37.8%	95.5%	55.5%
Sola	71.7%	56.6%	93.3%	65.0%
Umej	25.1%	21.9%	87.1%	63.3%
Unpongkor	38.1%	53.9%	73.0%	63.5%
Vetumboso	44.7%	72.3%	97.9%	95.7%
RURAL	38.0%	42.5%	80.8%	61.6%
Total	38.7%	53.4%	85.2%	51.5%

Perceived social impacts of telephony

Past research has suggested that increased technology use can lead to social changes that communities perceive to be negative. When we asked survey respondents whether they felt that increased phone use had influenced the magnitude of several social problems in their communities, the majority said yes—they believed that phones had either had some influence, or a lot of influence, on problems such as bullying, marriage breakups, reduction in traditional communication, pornography, student distraction, and youth problems. Some respondents also mentioned other social concerns that they thought phones contributed to, including increased crime, financial problems (related to over-spending on phones), negative health effects, jealousy, and laziness.

Qualitative insight: Adults concerned that youth are being negatively influenced by increased use of mobile phones

Participants in male and female focus groups in Lenakel, Middle Bush, Lamen Bay, Chapius East, Port Olry, Blacksands, and Vetumboso mentioned a number of negative social changes relating to phones. Most concerns in these areas centred on perceived problems of increased mobile telephony for young people, including negative impacts on their education, their future relationships, and their family bonds. For instance, some focus group participants thought that more youth were swearing or acting in abusive ways due to messages they were being exposed to via mobile phones and the internet.

'too many children own phones and spend so much time on phones that they become lazy, listening to bad music and seeing many bad things' NGO representative, Female focus group, Vetumboso.

Some also thought that more village teenage girls were becoming pregnant as a result of secret 'romantic liaisons' arranged via text messages. Others reported that school students had been dismissed from school for breaching rules prohibiting mobile use during school hours, negatively impacting on their education. Aside from the perceived high cost of mobile telephony, such problems were seen to be the main 'downside' of improved telecommunications.

'…I was here and I had my eldest brother's daughter with me…she had a phone that she often hid, and she only used the phone in secret because her phone contained some pornographic images [rabis pija long hem blo wan man wetem wan gel]. When I asked to use her phone one time I saw the images… I then demanded that she delete those images and stop looking at or exchanging such materials. But today, the girl is two months pregnant... She is a teenager, 17 years old and she has an expensive phone. I don't know who gave it to her. This is my bad experience with phones in my house' Household representative, Female focus group, Chapius East.

As shown in Table 41, respondents in some areas were more likely than those in other areas to perceive particular types of phone-related problems. For instance, more urban respondents than rural respondents perceived phones to contribute to each of the issues we asked about, suggesting that phones are being used in different ways in different areas (perhaps related to different levels of phone capabilities—residents in some areas may tend to have simpler phones, lacking image capabilities). Different survey locations also differed in the proportion of respondents who thought that phones contributed to various issues—for instance, in Vetumboso the majority of respondents did not perceive phones to have influenced bullying, marriage breakups, or pornography in their community. These differences between areas may be related to the different degrees of exposure to mobile phones and internet that each community has had—over time, different benefits and costs of having improved communications may become more evident, changing opinions about the value of ICT.

Table 41. Proportion of respondents perceiving phones to have influenced various social issues

Survey location	Increased bullying	Influenced marriage breakups	Reduced use of traditional forms of communication	Increased pornography	Distracted students	Increased youth problems
Blacksands	84.6%	97.4%	96.5%	95.6%	99.1%	98.2%
Chapuis East	96.5%	97.4%	96.5%	94.8%	97.4%	98.2%
Freswota 1	87.2%	100.0%	96.5%	100.0%	98.8%	98.9%
URBAN	88.3%	97.9%	96.4%	96.3%	98.6%	98.4%
Anelghowhat	64.5%	88.5%	98.8%	96.3%	94.9%	96.3%
Atabulu/	93.9%	95.4%	89.2%	93.9%	92.3%	98.4%

Atangurua						
Isini	63.1%	98.5%	95.3%	98.5%	92.3%	98.4%
Lamen Bay	80.7%	98.4%	100.0%	98.4%	96.8%	100.0%
Lamnatu	78.2%	96.9%	96.9%	92.2%	87.6%	96.9%
Levetlis	86.7%	93.3%	46.6%	86.7%	80.0%	83.3%
Ngala	34.5%	88.0%	98.3%	94.8%	46.5%	92.9%
Port Narvin	82.4%	100.0%	92.2%	96.1%	94.0%	96.1%
Port Olry	95.5%	100.0%	95.5%	93.2%	100.0%	100.0%
Sola	50.8%	79.3%	68.2%	69.8%	74.6%	82.5%
Umej	63.6%	91.0%	91.0%	97.0%	90.4%	83.9%
Unpongkor	85.9%	98.4%	96.9%	96.9%	92.2%	98.5%
Vetumboso	31.5%	42.5%	54.1%	45.2%	54.8%	57.5%
RURAL	68.4%	88.8%	87.5%	88.3%	83.8%	91.1%
Total	75.6%	92.1%	90.7%	91.2%	89.2%	93.8%

Table note: It is possible that these figures over-represent actual concerns, as there may be an 'assent-bias' in responses.

A special subgroup: respondents without mobile phones

Finally, we asked a few additional questions of the relatively small group of respondents (comprising less than 20 per cent of the total sample) who do not currently have mobile phones. First, we asked how likely they would be to buy a phone in the future, and what reasons (if any) they had for not buying a phone. The majority of the group (56.9 per cent) said they were likely to buy a phone in the future. One in four of these people said this likelihood was high (i.e. that they had plans to get a phone in the near future); others were less certain.

The key reasons given by the people who were either uncertain about getting a phone, or who said they were not planning to get a phone, were that they thought mobile phones were too expensive (35.1 per cent), or that they just do not like them (36.2 per cent). Other people said that there was inadequate local network coverage (13.2 per cent). When probed about what 'other' reasons might prevent them from purchasing phones, several respondents said they thought they would end up spending too much money in the future to buy credit for the phone. Others were concerned about possible health complications, or were not sure how to use a phone. One respondent said he thought he was just too old to use a mobile.

We also asked these respondents how useful they expected phones to be for them for business purposes, social purposes, and informational purposes. The majority of respondents (ranging from 63.7 per cent to 65.4 per cent) said that they expected phones to be either useful or very useful for each of these three purposes. Many of them also listed a number of other ways in which they thought mobile phones could be useful for them, including increasing the speed of orders and transactions, reducing the need for travel, generally saving time and money, and improving connections and organisation both within the local community and with people in other areas.

7. Internet use

The final section of our survey this year asked respondents about internet use. This was the first time that such questions have been asked. The response rate was low, as the majority of survey respondents indicated that they did not have any internet access. Nevertheless, the limited number of responses we were able to gather indicated that people are beginning to access the internet at internet cafes and at their workplaces, and to a lesser extent through mobile phones and on home computers. Respondents perceived the internet to be important, especially for accessing news and information, but do not yet view it as an essential service. Perceived cost, limited availability of computers, and lack of experience with the technology appear to be key barriers to increased usage.

Exposure to the internet

Reflecting the absence of effective services across Vanuatu,[35] internet penetration appears to be low among the population surveyed: 72 per cent of respondents said they had never seen or used the internet or email. A further 17 per cent said they had seen the internet, but not used it. As may be expected, these exposure levels significantly differed between urban and rural areas, with only 20 per cent of the rural population having even seen the internet being used, compared to 40 per cent in urban areas.

Table 42. Proportion of survey respondents who have seen or used internet or email – by village

Survey location	Seen and used	Seen but not used	Not seen or used
Blacksands	20.9%	12.4%	66.7%
Chapuis East	10.3%	29.9%	59.8%
Freswota 1	44.2%	17.4%	38.4%
URBAN	22.7%	18.2%	59.1%
Anelghowhat	7.7%	32.3%	60.0%
Atabulu/Atangurua	4.6%	4.6%	90.8%
Isini	12.3%	35.4%	52.3%
Lamen Bay	11.3%	8.1%	80.6%
Lamnatu	1.5%	3.1%	95.4%
Levetlis	0.0%	3.3%	96.7%
Ngala	1.7%	3.4%	94.8%
Port Narvin	0.0%	22.2%	77.8%
Port Olry	2.1%	10.6%	87.2%
Sola	15.9%	30.2%	54.0%
Umej	0.0%	28.6%	71.4%
Unpongkor	7.8%	10.9%	81.3%
Vetumboso	0.0%	9.0%	91.0%
RURAL	5.5%	15.5%	79.0%

35 . Digicel offers GPRS/EDGE connectivity throughout its coverage area, but the service has been reported to be very unreliable by members of the Vanuatu Geohazards Unit, who attempted to obtain mobile connections in Tanna, Lopevi, Ambae and Gaua.

Total	11.8%	16.5%	71.8%

Exposure also differed between age groups, with younger respondents being far more likely to have seen and used the internet than older respondents. This is likely partly explained by the higher proportions of younger respondents in urban areas, where internet is more accessible.

Table 43. Proportion of survey respondents who have seen or used internet – by age group

Age Group	Seen and used	Seen but not used	Not seen or used
Under 25	22.2%	15.7%	62.0%
25-35	14.3%	16.7%	69.1%
36-50	7.0%	18.8%	74.2%
51-70	3.8%	12.7%	83.4%
Over 70	0.0%	6.7%	93.3%
Total	11.8%	16.5%	71.8%

Interestingly, the most frequently reported first point of exposure to, or information about, the internet was through seeing it being used or talked about in the media (121 people reported this). Another frequently reported means of exposure was through seeing students using it (76 people). People also said they had seen others accessing the internet through their mobile (33), going into an internet cafe (26), or had learned about it through their company (25) or by seeing colleagues using it (58).

Of the 138 respondents who said they had used the internet and email, the majority (79%) had been using the internet for more than 2 years, while approximately 20 per cent had started using the internet in the past year or month. There were no significant differences in frequency of uptake between areas or population groups.

The questions on internet access, costs, and importance presented in the remainder section should have been directed to only those people who said they did use the internet (n=138), while the remaining questions (on barriers to use and perceived impacts) should have been directed to all respondents who had seen the internet, whether or not they had used it (n=331). However, there appears to have been some confusion in the survey administration, and responses were not recorded for the full relevant sample for all questions. In tables of overall responses we have provided proportions of unrecorded responses, and caution readers that high numbers of 'no responses' may indicate lower reliability of the data for that survey question.

Access to the internet

The most frequently used sites for internet access were workplaces, followed by internet cafes. Fewer people reported accessing the internet through private home computers or self-owned mobile phones. Other points of internet access that respondents identified included school or university, through mobile phones or computers belonging to friends or family, at community service offices such as Youth Challenges and Wan Smol Bag Theatre,[36] or at shops or offices. These patterns of access likely reflect the demographics of the survey sample; for instance, internet access through schools or university likely would have been higher if we had surveyed a younger group of respondents.

36. Wan Smolbag Theatre is a non-government organisation operating throughout the Pacific from a base in Port Vila. The organisation runs performances and structured workshops on topics such as Education, Environment, Governance, Health and Youth issues, with the aim of raising awareness and facilitating community discussion. www.wansmolbag.org

Table 44. Places where people access the internet

Location		Count	Percent*
Internet café		28	20.3%
Private access - home computer		19	13.8%
Workplace		37	26.8%
Mobile phone		13	9.4%
Other (specified below)		33	23.9%
Schools	*School*	*8*	
	University of the South Pacific	*3*	
Family/friends	*Friend's house*	*3*	
	Brother's house	*1*	
	Aunty/Mother's house	*1*	
	Father's laptop	*1*	
	Friend's mobile	*6*	
Community centres	*Wan Smol Bag*	*3*	
	Youth Challenges	*2*	
Shops/offices	*Private Work*	*1*	
	Volcano Office next to 'Flaming bull'	*1*	
	Stop Press	*1*	
	Nambawan café	*1*	
	Centre Ville	*1*	
No response		21	15.2%

* Table Note: Some people indicated that they accessed the internet at more than one location, hence the percentages add up to more than 100%.

As shown in Table 45, patterns of use for each of these access locations differed. People who accessed internet at workplaces were more likely to do so on a daily basis. People who used home computers and mobiles (own or others') tended to access the internet on a weekly basis, and people who went to internet cafes did so just once or twice a month.

Table 45. How frequently users access the internet, by location (% of respondents)

Internet Cafe	10.1%	0.7%	5.8%	1.4%	15.9%	*65.9%*
Home computer	10.1%	4.3%	3.6%	0.7%	2.9%	*78.3%*
Mobile phone	9.4%	0.7%	2.9%	2.2%	4.3%	*80.4%*
Workplace	9.4%	23.2%	2.9%	2.2%	1.4%	*60.9%*
Other place	10.1%	4.3%	8.0%	4.3%	6.5%	*66.7%*

Qualitative insight: Even where internet access is available, knowledge about it is still limited

In almost all of the community focus group discussions (the only exception being in

Analghowhat), some group participants mentioned the internet as an important service. Many of these people said they knew of other people who had used the internet, or had heard about it. However, few participants were familiar with using the internet themselves.

Notably, in areas where exposure to the internet was more limited (and where, often, access was simply unavailable), very little of the conversation dwelled on the internet, with more focus being given to telephones and other community infrastructure. For instance, participants from male focus groups in Middle Bush/Lamnatu, Umej, Lamen Bay, Blacksands, Freshwota 1, Port Narvin, and from female focus groups in Lamen Bay, Ngala, Blacksands, Port Olry, Vetumboso, Unpongkor, Efate, Santo, Tanna, and Aneityum hardly discussed the internet, only referring to it briefly.

In contrast, in group discussions in areas with better internet access (e.g. Lenekal, Analgohowat, Sola, Freshwota 1, and Chapius East), more of the group participants talked about the internet. Most described what they had heard about the internet from other people, or where they knew the internet could be accessed, but few had actually used the internet themselves. In Lenakel, participants in the female focus group said they did not know how to use the internet themselves but knew the internet was provided at the TVL office, USP Tanna Campus, and at the provincial hospital. In Sola one of the female focus group participants working at the provincial government said that she did not use the internet herself, but knew her colleagues sometimes emailed.

An interesting exception to the relationship between internet access and internet knowledge was in Blacksands, which is located in Port Vila, and where people should have reasonable access to internet cafes and community facilities offering internet access (such as Wan Smol Bag). None of the participants in either the male or female focus groups in Blacksands talked about the internet, illustrating that although access may be available there, many people are still unaware of it or do not see it as an important part of their daily lives.

Even where internet access was available, participants noted that it was not particularly reliable. For instance, participants in Sola, Lenakel, and Aneityum said they thought the service was often temporarily out. In Freshwota 1 and Chapius East, some participants reported that the most reliable access was at their work place.

Costs of internet use

The reported patterns of use may in part reflect the cost of each instance of access. As shown in Table 46, most reported internet expenditure was in internet cafes, although this tended to be less than 5,000 vatu per month in total. Many users reported not paying anything for access at work or from other access points (such as friends' phones or computers). Those who said they did not pay to use home computers may not have been considering the cost of monthly connection fees, which some respondents reported to cost over 5,000 vatu per month. It seems likely that monthly connection fees create a prohibitive barrier to accessing the internet at home—it is notable, for instance, that although a reasonable number of urban respondents reported owning a computer, few appear to be using those computers for internet access (i.e. perhaps using them solely for word processing and other similar functions).

*Table 46. How much users spend on the internet per month by location (% of respondents)**

Access Location	Don't pay	< VUV500	VUV500-1,000	VUV1,000-5000	> VUV5,000	*No response recorded*
Internet Cafe	1.4%	5.1%	9.4%	6.5%	1.4%	*76.1%*
Home computer	4.3%	1.4%	0.0%	5.1%	2.2%	*87.0%*
Mobile phone	1.4%	3.6%	2.2%	0.7%	2.2%	*89.9%*

Workplace	26.8%	0.7%	0.0%	2.2%	0.7%	*69.6%*
Other place	23.2%	4.3%	1.4%	0.0%	0.0%	*71.0%*

Based on midpoints of the cost ranges that respondents selected, excluding those who did not pay for or use the location,[37] it appears that the highest monthly expenditure was via home computers (approximately 3,700 vatu per month—which may be understated, as noted above), followed by work (approximately 3,400 per month), mobile phones (approximately 2,400 vatu per month—again, possibly understated), and internet cafes (approximately 1,700 per month). These amounts are considerably more than those reported for expenditure on mobile calls and texting (as shown earlier in Section 6 of this report), which may be why the internet was widely perceived by respondents as either very expensive (34 per cent) or a bit expensive (28 per cent).

Importance of the internet

Regardless of where they were using the internet, the majority of users thought the internet was important or very important for accessing general information (75%), for international news (75%), for work emails (67%), for study purposes (67%), for personal emails (69%), for business (67%), for weather information (60%), and for accessing government information (52%). Fewer people thought that the internet was an important tool for communicating in times of emergency (37%).

Despite this appreciation of the importance of the internet, most people felt they would still be able to carry out their current economic and information gathering activities if they no longer had internet access (only 4% of respondents to this question felt they 'could not continue'). However, the majority (51% for information gathering, and 44% for economic) said they would encounter difficulties in doing so. In contrast, internet appeared to be less important for social activities: 46 per cent of people using internet for this purpose said it would make little or no difference to their social lives if they no longer had access, while 28 per cent could continue their current social activities with some difficulty.

*Table 47. How being unable to use internet would impact current activities (% of respondents)**

	Could not continue	Continue with difficulty	Not much difference	No difference at all	No opinion	*No response recorded*
Impact on economic activities	4.3%	44.2%	7.2%	17.4%	13.0%	*13.8%*
Impact on general information access	4.3%	51.4%	8.7%	14.5%	8.0%	*13.0%*
Impact on social activities	1.4%	28.3%	12.3%	33.3%	10.9%	*13.8%*

Barriers to using the internet

When asked about why they are not *currently* using the internet (regardless of whether they ever had), the majority of respondents (57%) said they had no way to access it. Many others (24%) said they did not use it because it was too expensive, and the remainder said they had other

37. These are 'rough' calculations based on the assumption that those reporting '< 500' were spending 250 vatu per month, those reporting '500-1,000' were spending 750 vatu per month, those reporting '1,000-5,000' were spending 3000 vatu per month, and those spending '> 5,000' were spending 7,500 vatu per month.

reasons or did not know. Of those who listed other reasons for not using the internet, the majority (70%) said '*no save usum'*—they didn't know how, or could not.[38]

When asked how likely they were to use the internet or email in the next year, just over half of the respondents said they were likely (35%) or very likely (15%) to do so, with the remainder indicating they were unlikely to (45%).

Of those who said they were unlikely to use the internet in the next year, the most frequently cited reason was that they didn't know how to use the internet (37%). Other frequently cited reasons were that it was too expensive (25%) or simply not available (23%). A smaller number (7%) said they did not have access to the internet, or had other reasons for not using it (6%), such as not feeling that the internet 'applied' to them, or just not wanting to.

Participants were also asked how easy they thought the internet would be to use. The majority of respondents to this question indicated that they thought the internet seemed easy to use (41%), and a further 21 per cent thought that it seemed difficult, but they could learn. Only 18 per cent thought that the internet seemed too difficult for them. Urban respondents (especially those from Efate) were significantly more likely to consider the internet easy to use (59%) than rural respondents (24%). Perhaps partly reflecting their greater concentration in urban areas, significantly more younger respondents (60% of those under 25, compared to 30% of those over 35) and respondents with higher levels of schooling (51% of those with a secondary or higher education, compared to 25% of those with a primary or no education) indicated that the internet seemed easy to use.

*Table 48. How easy internet seems to use, by survey location (% of respondents in each area)**

Survey location	Seems easy	Seems difficult but could learn	Too difficult	Don't know
Blacksands	61.3%	18.7%	14.7%	4.0%
Chapuis East	38.3%	14.9%	12.8%	17.0%
Freswota 1	64.2%	22.6%	5.7%	5.7%
URBAN	56.0%	18.9%	11.4%	8.0%
Anelghowhat	15.4%	19.2%	3.8%	61.5%
Atabulu/Atangurua	33.3%	16.7%	33.3%	0.0%
Isini	32.3%	6.5%	25.8%	35.5%
Lamen Bay	50.0%	16.7%	33.3%	0.0%
Lamnatu	33.3%	33.3%	0.0%	33.3%
Levetlis	0.0%	0.0%	0.0%	100.0%
Ngala	0.0%	0.0%	33.3%	33.3%
Port Narvin	0.0%	25.0%	41.7%	25.0%
Port Olry	33.3%	16.7%	50.0%	0.0%

38. A low sense of familiarity with the internet could be partially linked to lower levels of literacy, especially for older respondents, and those living in rural areas. Some respondents may have also given this response to mean being physically unable to use the internet because of lack of acces, although this is unlikely given the contextualisation of the question.

Sola	20.7%	37.9%	34.5%	3.4%
Umej	12.5%	0.0%	37.5%	37.5%
Unpongkor	25.0%	58.3%	8.3%	8.3%
Vetumboso	14.3%	57.1%	28.6%	0.0%
RURAL	23.1%	23.7%	26.3%	24.4%
Total	40.5%	21.1%	18.4%	15.7%

Perceived impacts of the internet

Finally, we asked participants about their perceptions of both the benefits and the negative impacts of the internet. The most frequently cited benefit of the internet was access to information, followed by making work communication more convenient and improving work efficiency. When asked to specify, respondents said some 'other' benefits included faster communication with family and friends, access to world news, and saving time in getting organised.

Table 49. Perceived benefits of using the internet

Benefit	Proportion of respondents*
None	10.9%
Improve work efficiency	25.4%
Work communication more convenient	27.8%
Save time organising	16.6%
Help get access to information	71.6%
Other	9.4%
No response recorded	7.3%

* Table Note: Some people indicated that they thought the internet had multiple benefits, hence the percentages add to more than 100%.

A handful of respondents identified some less well-recognised benefits. For example, one said the internet could be used to sell their handicrafts, another said the internet was good for meeting new friends, three indicated that the internet was beneficial for education and school research, and two others thought that downloading music and movies was an important benefit.

Qualitative insight: Little exposure, but lots of perceived benefits

Participants who talked about the internet expressed their belief that it brought many benefits—even despite their limited exposure and access, and the unreliable services in their communities. Participants in groups in Analgohowat, Freshwota 1, Chapius East, Atangura/Atangbulu and Levetlis said they thought the internet was good for accessing the most up to date local and global information and events. In group discussions in Unpongkor, participants said they want internet services to become available in their areas, so they could benefit from it. In Vetumboso and Sola, groups participants perceived internet as one of the fastest and most convenient forms of communication. One of the men in the Vetumboso focus group participants explained:

'I am seeing more new technologies through mobile are coming to this community. Now when I talk about internet, not or most people here know about it. Only few of us know. Internet is good

for communication. My son is married to an Australian, if there was internet, it will be easy to communicate with him. Or if I or his mother dies, he can find out through using internet messages [email] quickly. Internet saves time and I think cost'.

In Analgohowat Freshowota 1, Sola, Atangura/Atangbulu, and Levetlis, participants talked about the specific benefits of internet to education, business, work efficiency and productivity, e-government and improvement to service delivery. They said the internet could enable them to get information during crises and emergencies, and enable email communication with family and friends. A teacher in one of the groups explained:

'It's a good service that provides up-to-date local and global news. [Internet] allow people to communicate across the world. Good internet improves the educational outputs of students as a result of exposure to a global library of learning resources. The benefits are significant for all aspects of community development, including education, healthcare, businesses, and entrepreneurial activities' (Female focus group –Atangura/Atangbulu, Central Pentecost).

Despite these perceived benefits, a considerable number of respondents thought the internet had some negative impacts (52%). Many others were unsure (26%). These responses significantly differed between urban and rural villages, with relatively more urban respondents (especially in Efate) indicating that they thought there were negative impacts, and more rural respondents (especially in Aneityum, Tanna, and Epi) being unsure.

When asked what they thought the negative impacts of the internet were, many respondents indicated access to pornography ('rabis' movies and pictures) was a key problem. Some specified that they thought viewing such images led to temptation, cheating on partners, breaking up families, wasting time not working, and even rape. Other negative impacts included increased criminal activities, negative changes to kastom and culture, increased laziness, addiction and other health problems, and the wasting of time or money.

Table 50. Any negative impacts of using the internet? (% of respondents in each area)

Survey location	Yes	No	Unsure
Blacksands	72.0%	18.7%	6.7%
Chapuis East	42.6%	29.8%	14.9%
Freswota 1	62.3%	15.1%	24.5%
URBAN	61.1%	20.6%	14.3%
Anelghowhat	30.8%	7.7%	61.5%
Atabulu/Atangurua	83.3%	0.8%	15.1%
Isini	29.0%	16.1%	51.6%
Lamen Bay	41.7%	25.0%	33.3%
Lamnatu	0.5%	66.7%	31.8%
Levetlis	100.0%	3.3%	0.0%
Ngala	0.6%	1.1%	100.0%
Port Narvin	66.7%	16.7%	16.7%
Port Olry	50.0%	16.7%	33.3%
Sola	51.7%	24.1%	24.1%
Umej	0.0%	3.6%	87.5%
Unpongkor	75.0%	16.7%	6.8%
Vetumboso	14.3%	100.0%	0.0%
RURAL	41.0%	19.9%	38.5%
Total	51.7%	20.2%	25.7%

Qualitative insight: Communities perceive threat of the internet introducing 'bad' material and unhealthy distractions

Participants in eight groups mentioned that they thought there were also some disadvantages of the internet, particularly in terms of negative social impacts. For example, one of the male participants in Sola said that excessive internet use could become a problem for employers, if their workers were wasting their productive time on emails. Women in Port Narvin, Freshwota 1, and Chapius East and men in Vetumboso, Ngala, Chapuis East and Atangarua/Atangbulu said they were concerned the internet could have a negative impact on marital and family stability, especially if people were accessing 'dirty' materials through the internet on phones and computers (including downloading illicit pictures) and engaging in inappropriate communication with community members. Women in Chapuis East also felt that the internet was somewhat dehumanising, and lacked the type of contact that they got in face-to-face communication.

8. Developments over time

Some of the data we collected in the 2011 survey is comparable with that from our two previous surveys, in 2008 and 2009. This section highlights some of the similarities and differences in the survey findings across the three years, focusing on the six survey sites (three urban, and three rural) that have been consistently polled during all surveys. Results suggest that respondents have consistently viewed recent changes in their communities as positive, aside from a perception of declining financial support. Mobile phone ownership has increased markedly since 2008, especially in rural areas, which have shown strong uptake of Digicel services. More and more households in both rural and urban areas have access to multiple mobile phones. At the same time, the use of letters and communication via local leaders has been declining. Face-to-face communication has retained its importance over time, but phones are increasingly seen to provide benefits in terms of access to specialised services, and augmented business performance.

Survey areas covered across all three years

Six sites were included in all three surveys undertaken between 2008 and 2011. The sample sizes for each of these sites are shown in Table 51 below.

Table 51. Sample sizes in each of six sites across three survey years

Location	2008	2009	2011	Total
Blacksands	34	110	227	371
Chapuis	30	95	117	242
Freswota 1	30	68	86	184
Urban areas total	*94*	*273*	*430*	*797*
Isini	25	59	66	150
Lamnatu	36	62	65	163
Port Olry	30	76	47	153
Rural areas total	*91*	*197*	*178*	*466*
TOTAL	185	470	608	1263

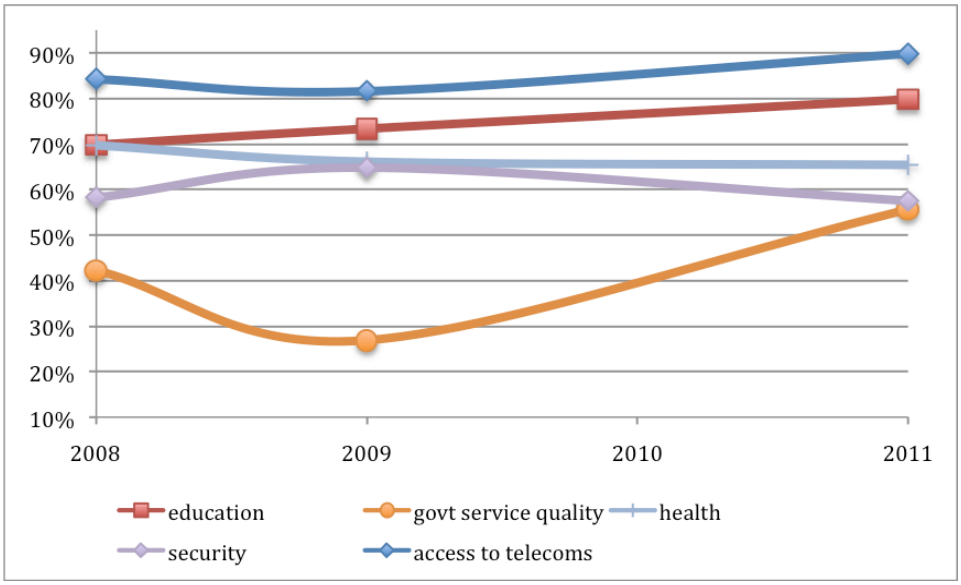
In this section, we compare only the data collected from these sites, rather than from the full samples in 2009 and 2011 (which covered additional sites). Although this approach requires us to set aside approximately half of the data collected in 2009 and 2011, we believe it is important to do so to enable more accurate comparisons across time.

Perceptions of community life becoming easier over time

Across all three survey years, the proportion of respondents who felt that life in their communities had improved over the last two years remained fairly stable, with a slight upward trend from 2008 to 2011 (see Figure 5 and Figure 6). This finding suggests that people in these communities perceive their lives to be continuously getting better.

As illustrated in Figure 5, the upward trend in perceived community improvements appeared strongest for government service quality. Although the proportion of respondents indicating an improvement in government services fell by approximately 13 per cent from 2008 to 2009, it then rose again by over 25 per cent from 2009 to 2011. This increase was most apparent in the Blacksands and Freswota 1, where considerably more people reported improvements in government services between 2009 and 2011 than had for the two-year periods leading up to 2008 and 2009. These areas likely benefit in terms of service access from their prime urban location in Port Vila and proximity to central government.

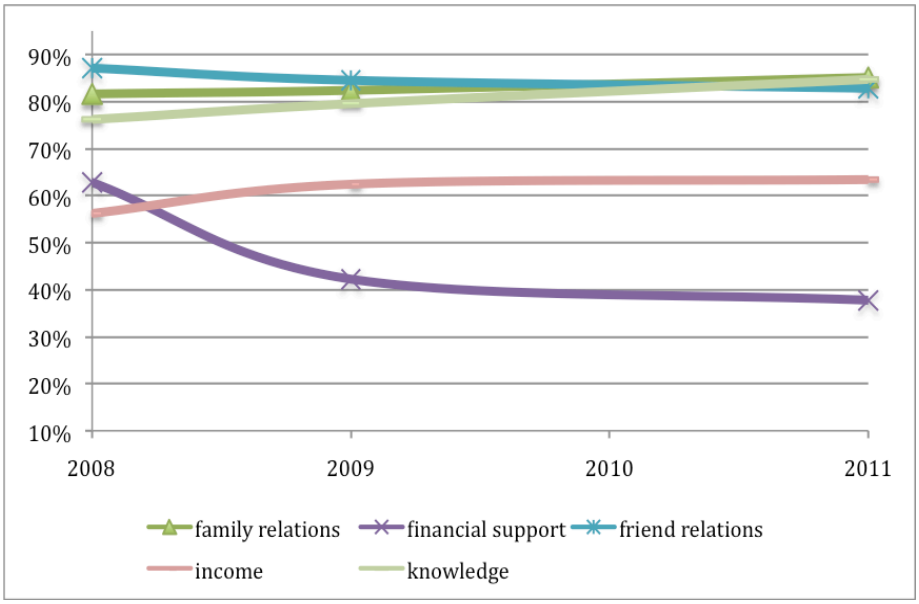
Figure 5. Proportion of respondents who thought education, health, security, government service quality, and telecommunications access had become better or much better in the past two years



There is one notable exception to the general trend of perceived improvements: as shown in Figure 6 below, the proportion of respondents who reported experiencing improved financial support (from external sources, such as other family members) over the past two years declined from 2008 to 2011.

However, this does not necessarily indicate that these households were becoming worse off; their perceived level of external financial support could have stabilised, rather than decreased. Even if financial support had decreased, this may have been offset somewhat by an increase in household income (as shown in Figure 6, the proportion of respondents who reported improved income over the past two years increased slightly over the three surveys, suggesting that households in these areas may have been becoming more financially self-sufficient). Such an increase in self-sufficiency may be one of the benefits of improved mobile communication networks and increased mobile phone access, as we discuss further below.

Figure 6. Proportion of respondents who thought friend and family relations, financial support, household income, and levels of knowledge had become better or much better in the past two years



Increases in phone ownership and importance

Across the six survey sites covered in all three years, the median number of mobile phones per household remained steady, at two. However, there was a slight but significant increase in the mean number of phones per household in these areas: from 2.01 in 2008, to 2.35 in 2009, and 2.75 in 2011. This increase was observable in both the urban areas and rural areas, as shown in Table 51 below.

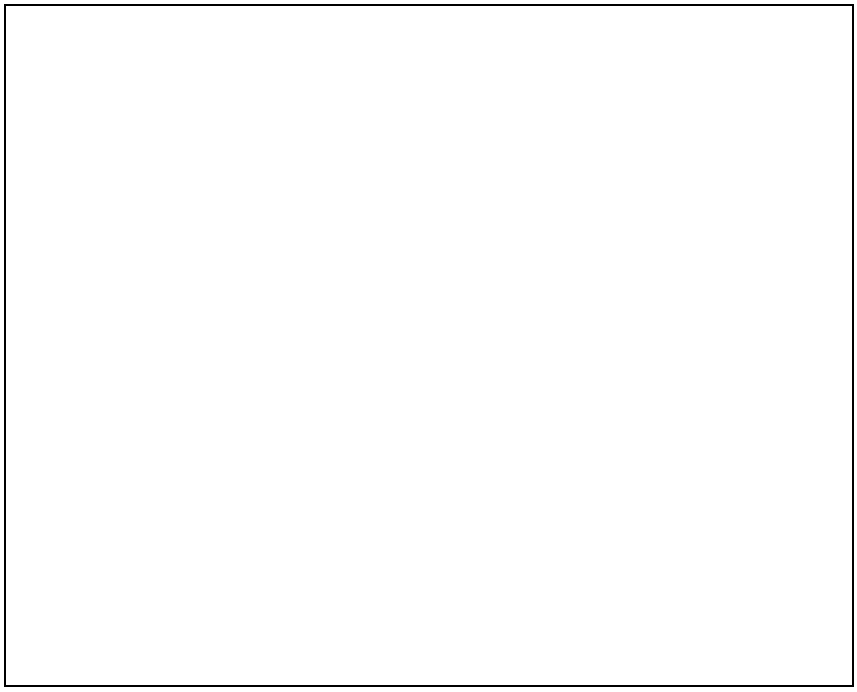
Table 52. Average number of phones per household across survey years

Year	Three urban areas			Three rural areas		
	Mean	Std. Deviation	Median	Mean	Std. Deviation	Median
2008	2.77	1.63	2	1.21	1.50	1
2009	2.85	1.46	3	1.66	1.10	1
2011	3.22	1.98	3	1.57	1.07	1

Figure 7 shows some further insights on these trends in increasing phone ownership, focussing more specifically on households with no mobile phones, and households with more than two mobile phones. Reflecting the marked increase in access to mobile telephone services in rural areas when Digicel first began operation, the proportion of rural households with no mobile phones decreased dramatically from 2008 to 2009, but then decreased only slightly more from 2009 to 2011. The proportion of urban households without mobile phones was small and relatively stable across the three-year period. In both rural and urban areas, the proportion of households with three or more mobile phones increased steadily between 2008 and 2011.

These increases in phone ownership suggest that people are relying less on borrowing phones from others, which likely makes phone use more convenient, amplifying many of the potential benefits of mobile communication.

Figure 7. Proportion of urban and rural respondents each survey year with no mobile phones at home, or three or more mobile phones at home



However, there is some indication that the number of phones per household may not continue to rise at the same rate that it has over recent years. For instance, data on *access* to phones indicates that, although there was an initial leap in access in rural areas from 2008 to 2009, there have not been further significant improvements in either rural or urban areas between 2009 and 2011 (see Figure 8). This suggests that, now, the main constraint to access is not phone ownership, but service coverage. Thus, the number of phones per household may not continue to increase at the same rate unless there are improvements in service reliability, especially in rural areas where phone convenience is limited by poor network coverage.

Figure 8. Percentage of respondents each year who said they had access to mobile phones

Trends in mobile service provider choice

Service coverage is also important when it comes to the choice of mobile service provider across locations in Vanuatu. In some parts of the country, only one service provider is available,

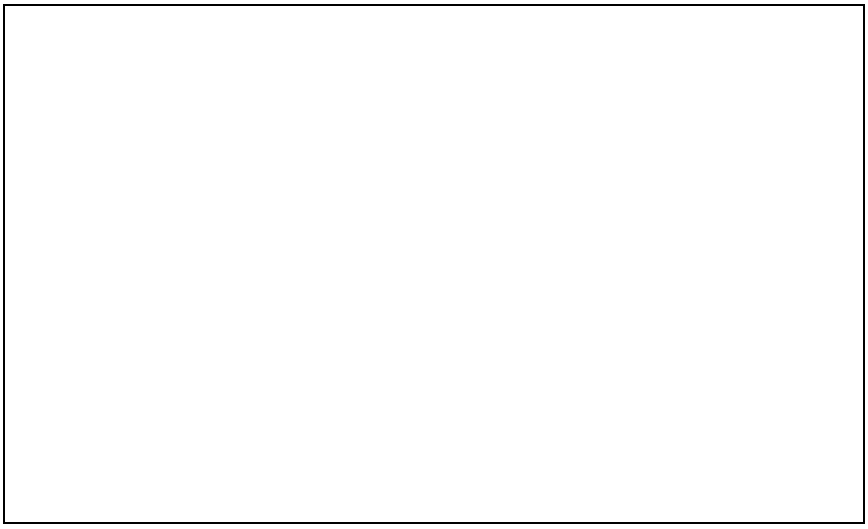
thus limiting consumer options. Nevertheless, all urban residents and many rural residents now have a choice between providers.[39] This choice has led to a fairly consistent pattern of service provider preferences since 2009.

Figure 9. Proportion of respondents in urban areas reporting use of different service providers

As shown in Figure 9, across the three years of the survey most urban respondents reported using Digicel as their sole service provider. Smaller, but roughly equal proportions reported using TVL alone, or both TVL and Digicel. There appears to be a slight trend towards greater use of TVL over time, possibly reflecting the more competitive offers TVL has made to consumers in an attempt to win back some of the market share from Digicel.

Service provider use in rural areas has followed a slightly different trajectory, as shown in Figure 10. Initially, rural residents reported higher use of TVL as a service provider, but once Digicel began operations in these areas it quickly became the preferred provider.

Figure 10. Proportion of respondents in rural areas reporting use of different service providers



39 . Port Olry, a rural area, is the only one of the six sites included in all three years of the survey that has only one provider: Digicel. The remaining five areas are now all served by Digicel and TVL.

Consistently high importance of phones as means of communication

Across all three years of the survey a high proportion of respondents indicated that phones were important or very important as a means of communication. Furthermore, in both rural and urban areas, the proportions of respondents indicating that communication by phones and face-to-face communication were important were similar. This suggests that phones have been integrated as a key mode of communication in all the surveyed communities.

Nevertheless, there were some notable differences in responses across urban and rural areas. For instance, as shown in the comparison of Figures 11 and 12, significantly more urban respondents than rural respondents thought technology-driven forms of communication such as advertisements, the internet, radios, and televisions were important. This likely reflects the higher rate of ownership of computers and other electrically powered communication appliances in urban households.

The one exception to this general trend for technology-driven modes of communication is with phones: large proportions of both urban and rural respondents viewed phones as important, although the proportion of rural respondents dropped notably over the three year period. This is an unexpected finding, given other indications that phones are becoming increasingly important (such as increased mobile phone ownership rates in rural areas, and the expansion of services). However, it may be explained in part by the use of the general category of 'phones': as explained in the Telephones section of this report, which discussed 2011 data, *fixed line* phones are now in decline in rural areas, and some respondents may have had the decreasing importance of these fixed phones in mind when answering this question in the 2011 survey.

Figure 11. Proportion of urban respondents indicating each technology-driven communication type was 'important' or 'very important'

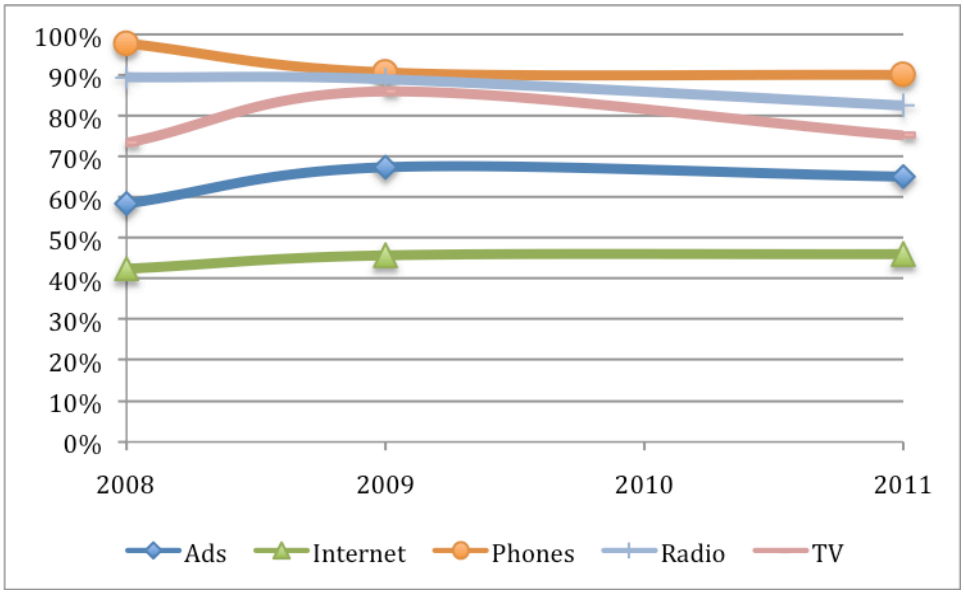
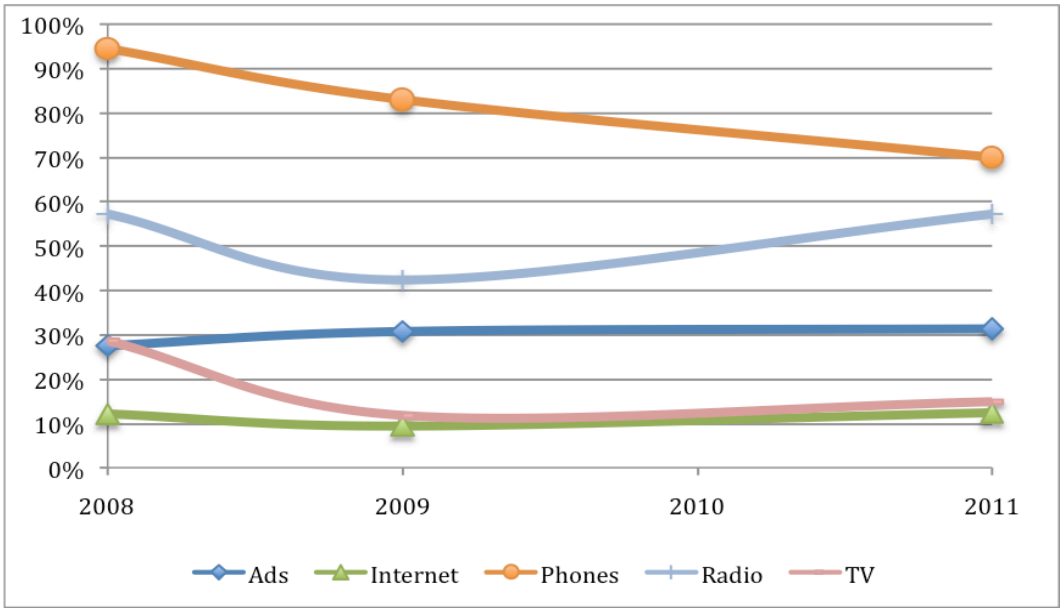


Figure 12. Proportion of rural respondents indicating each more technology-driven communication type was 'important' or 'very important'



Urban-rural differences are also notable when looking at changes in the importance of more traditional forms of communication from 2008 to 2011. For instance, as shown in the comparison of Figure 13 and Figure 14 below, the proportion of respondents in urban areas who thought local leaders were important for communication declined slightly over the three survey years, whereas there was no significant pattern of decline in rural areas—perhaps reflecting the stronger traditional social structures in rural communities. In contrast, the proportion of respondents in urban areas who indicated that village information centres were important for communication remained stable, whereas the proportion in rural areas declined steadily from an initially higher rate. This decline in rural areas may be related to the need to travel some distance to reach an information centre, which could be avoided through the increasing use of phones.

Figure 13. Proportion of urban respondents indicating each more traditional communication type was 'important' or 'very important'

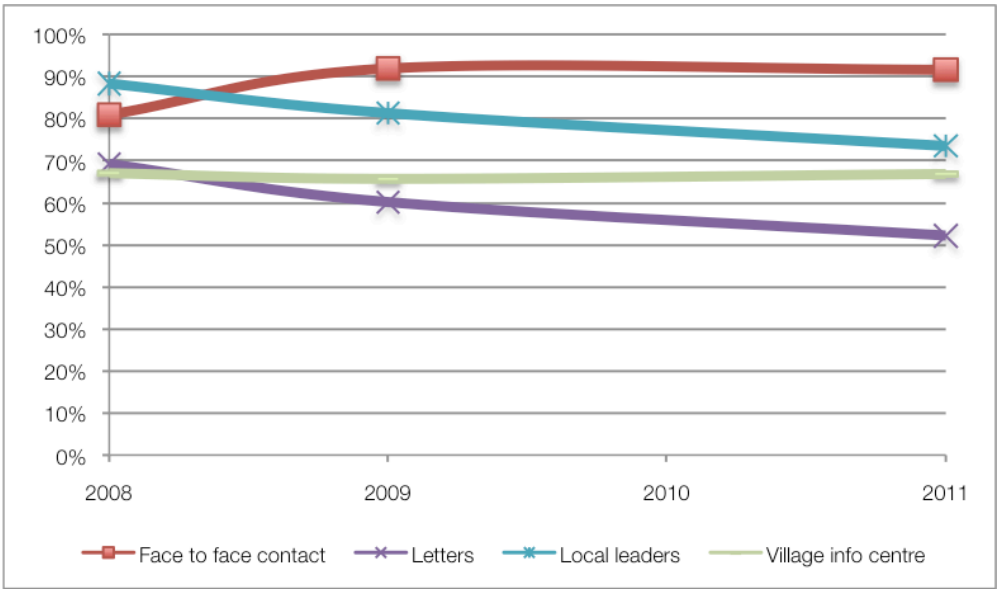
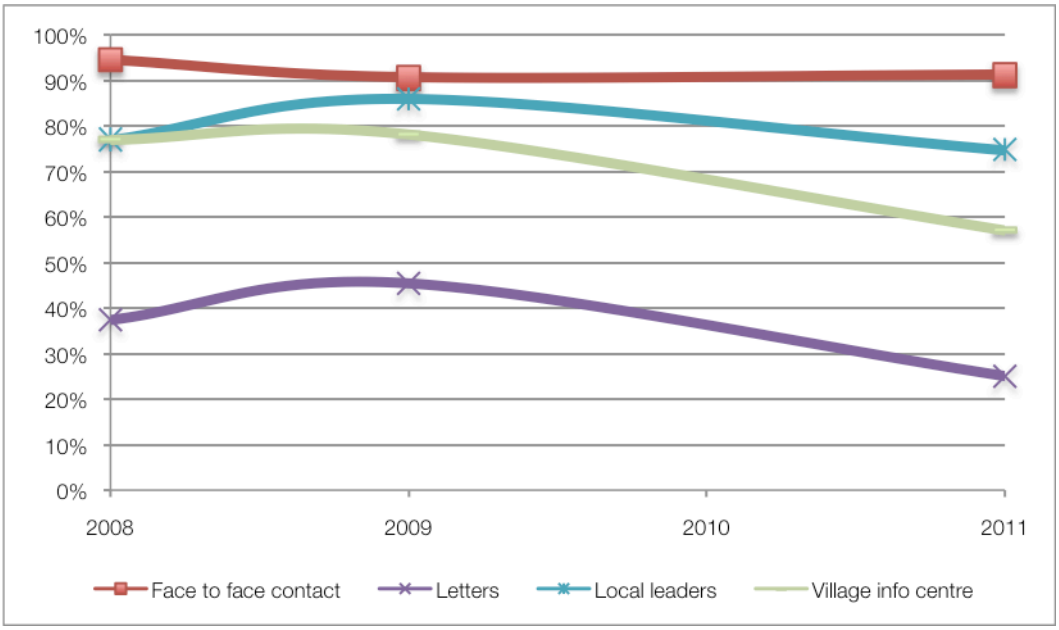


Figure 14. Proportion of rural respondents indicating each more traditional communication type was 'important' or 'very important'



Overall, these varying patterns of responses suggest that communities have responded in different ways to increased access to mobile telephony, finding that some of their previous modes of communication have become less relevant or convenient relative to phones (for instance, letters have shown a steady decline in both rural and urban areas), while other modes of communication (in particular, face-to-face contact) remain valuable—perhaps because they offer other social and economic benefits beyond simple communication.

Trends in choice of communication mode

We also asked respondents which means of communication they primarily used for the purposes of emergency communication, education, business, accessing government services, obtaining news and weather, and making social connections. As shown in Figure 15 and Figure 16 below, most primary modes of communication remained fairly stable across the three survey years. Two exceptions were face-to-face contact, which showed a considerable increase from 2008 to 2009 before levelling out, and phone use, which showed a considerable decrease from 2008 to 2009, before increasing again slightly. These patterns may be attributable to many of the 2008 respondents saying they used 'phones and other' modes of communication, in roughly equal amounts; it is likely that they also used face-to-face contact as a first or second choice for many of the communication purposes asked about. In support of this postulate, across the seven reasons for communicating that the survey asked about, on average across the three survey years the most frequently cited primary means of communication was face-to-face, followed by radio and phones.

Figure 15. Average proportion of respondents indicating that more traditional forms of communication were their primary choice of communication across various purposes

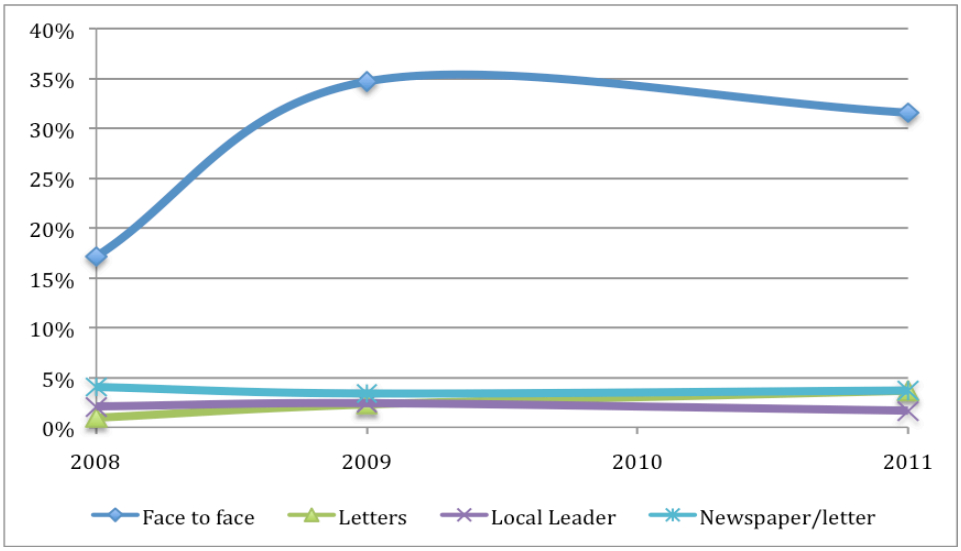
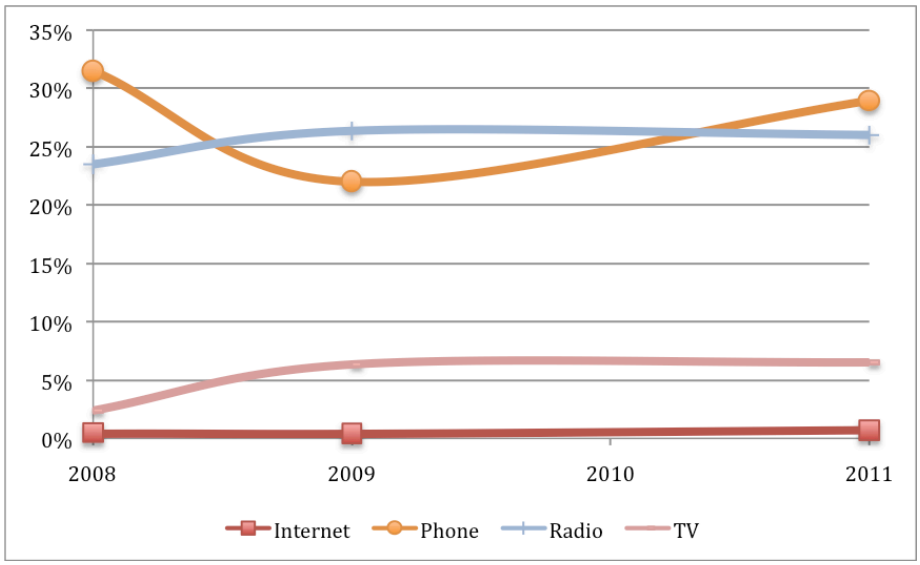


Figure 16. Average proportion of respondents indicating that more technology-driven forms of communication were their primary choice of communication across various purposes



However, preferences for communication mode did differ slightly for each communication purpose. For instance, across all three survey years phones were consistently the most commonly preferred primary communication means for emergencies, and radio was consistently preferred for obtaining news and weather information. Although face-to-face contact was important for all communication purposes, it was most consistently preferred for obtaining farming and business information.

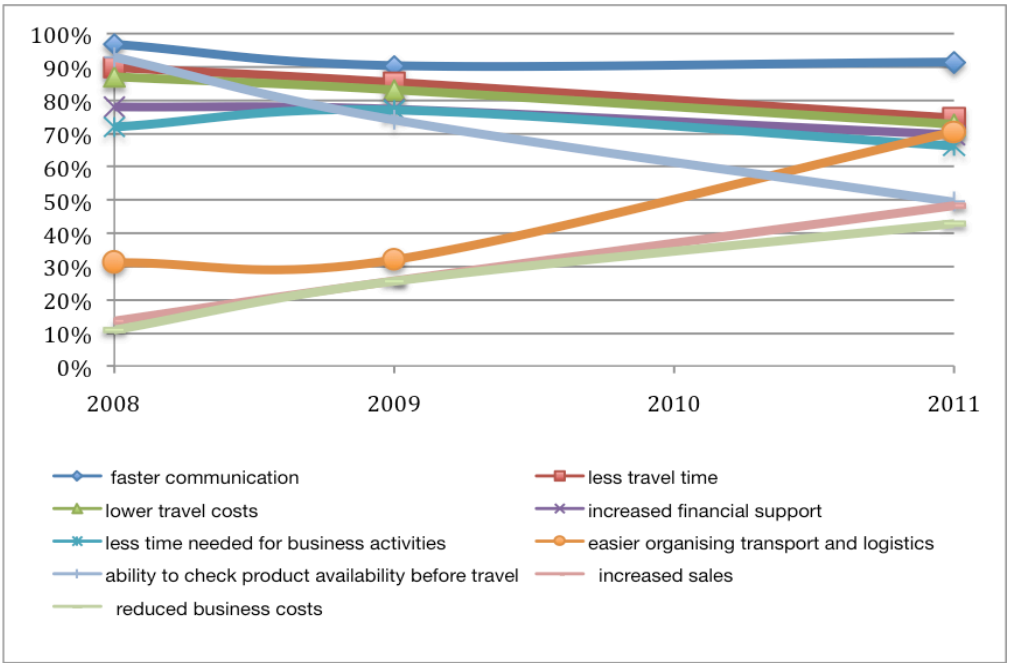
Perceived benefits of telecommunications

In each year of the survey, we asked respondents whether they thought that phones have had a beneficial impact in their lives over the *past two years*. Specifically, we asked them to indicate whether phones had any influence in the past two years on various indicators of their economic wellbeing, their social connections, and their access to services and information.

As the following Figures illustrate, the proportion of respondents who agreed that phones had been influential (in either minor or major ways) in each of these areas varied significantly from

year to year.[40] There was no uniform trend in this variation. However, what the changing levels of influence across the three survey years appears to show is how increased telephony has changing impacts over time. In the initial period after access has increased, for example, big improvements in the ease of checking on product availability before travelling were noticed by many respondents (see 2008 data in Figure 17).[41] However, in later years, increasingly fewer respondents indicated that phones had recently been helpful in this way (see 2009 and 2011 data in Figure 17), likely because they had become accustomed to the new technology, and the benefits they received from it had been consolidated into their everyday lives.

Figure 17. Percentage of respondents each year who said that phones had 'influence' or 'large influence' on various types of economic benefits



Such 'accustomisation' effect may also explain the patterns seen in Figure 18 and Figure 19: over time, fewer respondents believed there had been additional benefits from mobile telephony in terms of increasing social support and increasing access to key services such as schools and colleges, health services, and emergency services. This is an understandable change, but also suggests that there are opportunities to further improve people's access to some key services by better adapting these services to new technological innovations.

40. Due to different protocols for survey execution and data entry across the three years of the survey, for the purposes of these cross-year analyses any missing data has been recoded as 'not applicable'. Thus, the percentages reported here are calculated as a proportion of all potential respondents for each year, not the proportion of respondents for whom data was non-missing. As a consequence, results for 2011 reported in this section may differ slightly from results reported elsewhere in the report, where our focus was on non-missing data.

41. Astute readers of our 2008 report may note that the data on perceived impact here differs from that in the 2008 report. This is because of a coding error that led to misreporting of results in the earlier report, but which has now been corrected.

Figure 18. Percentage of respondents each year who said that phones had influence' or 'large influence' on various types of social network benefits

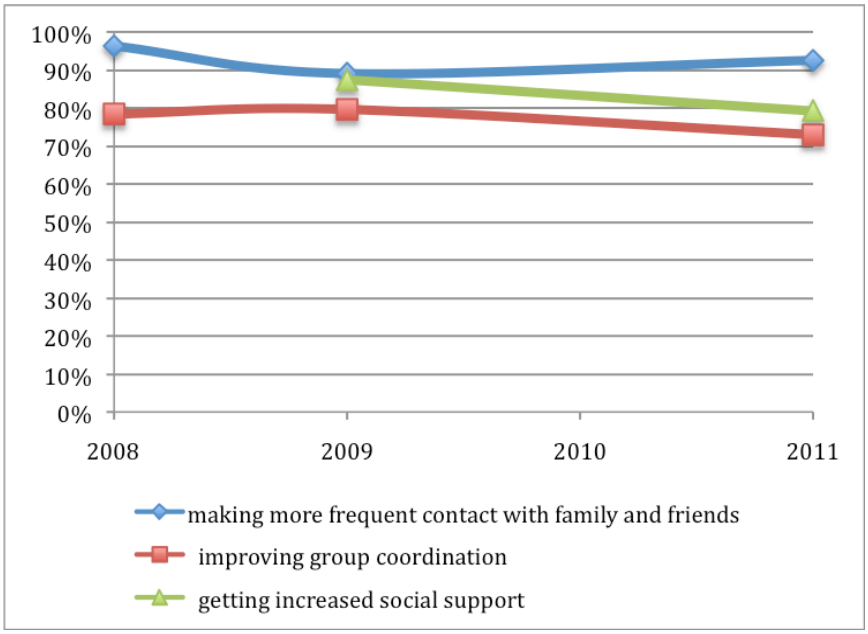
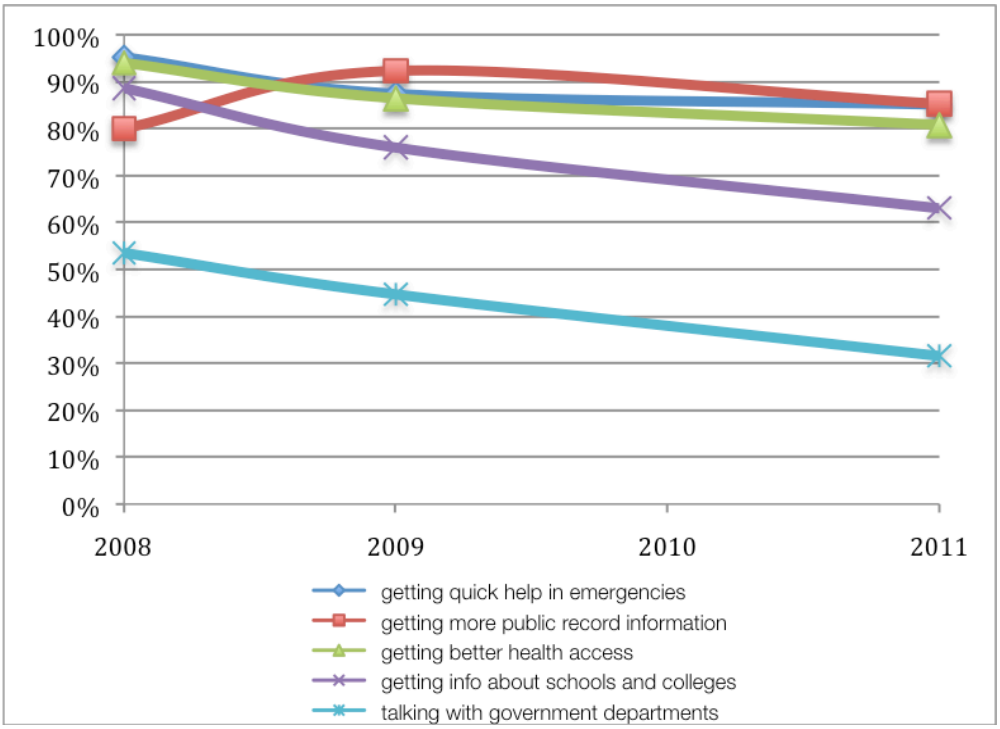


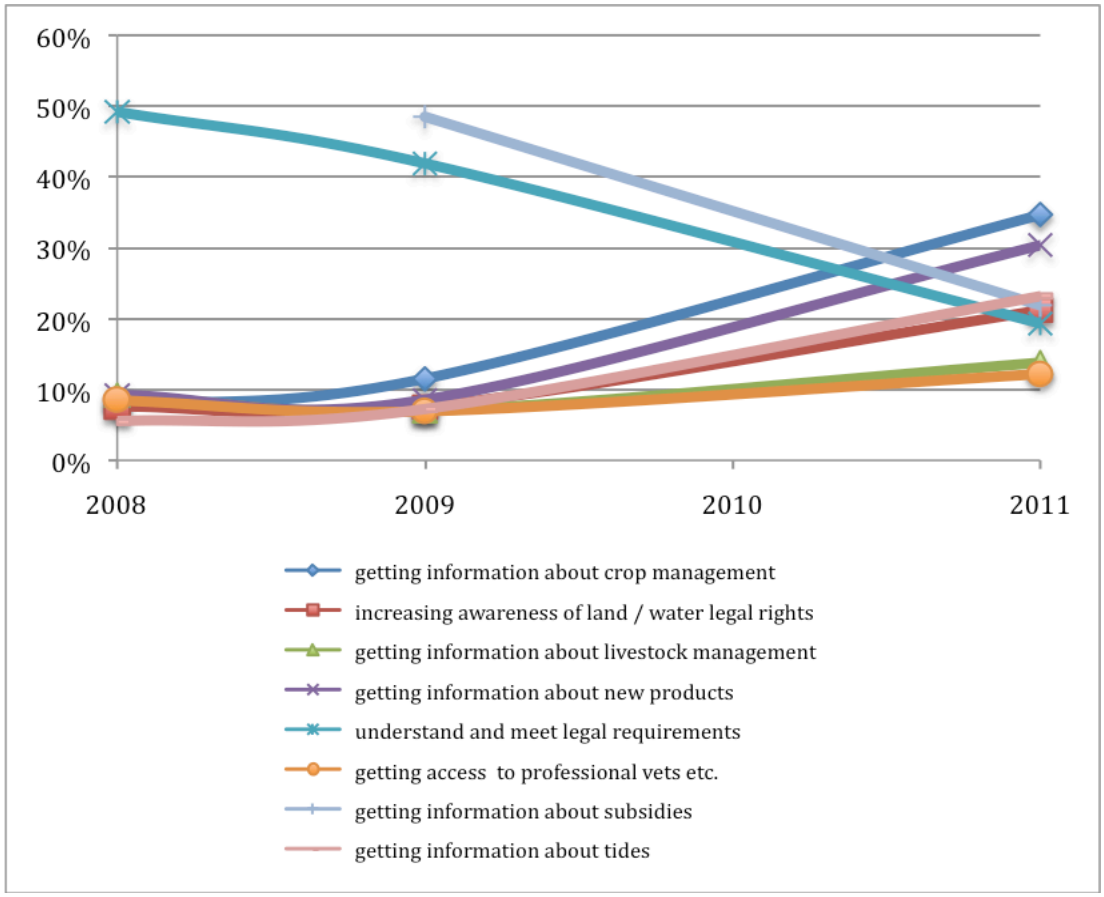
Figure 19. Percentage of respondents each year who said that phones had some influence on various types of key service access benefits



In contrast, other types of benefits from mobile phones may be recognised more slowly, as the new technology begins to lead to longer-term behavioural change. For instance, looking back at the data on economic benefits, increased sales may be one benefit that manifests more slowly over time, as market behaviour shifts (see Figure 17 above).

In a similar vein, access to many specialised services may only begin to increase after people begin accessing these services by phone, rather than in person. As shown in Figure 20 below, more respondents in 2011 than in 2009 and 2008 perceived phones to have provided benefits in terms of getting information about crops, new products, legal rights, and tides. Because these services are less likely to be accessed on a regular basis (in contrast with key services), the benefits that increased telephony provides may be more slowly realised—in other words, people may only have been using their phones for these purposes more recently.

Figure 20. Percentage of respondents each year who said that phones had some influence on various types of specialised service access benefits



Nevertheless, in interpreting the data on changes in perceived phone benefits over time, it is also important to be mindful that benefits are often more salient when they relate to areas that reflect community and personal priorities. For instance, Figure 19 above indicates a decrease over time in the perceived benefits of phones in helping to understand and meet legal requirements, and to get information about subsidies. This may not be so much because phones have somehow lost their utility, but because people have had less need of these services (they are no longer priorities), or have had their access to them restricted (e.g. there may be fewer subsidies available). Conversely, the increase in the perceived benefits of phones for getting information about new products and about crop management may be because commercial developments have led to these services becoming new community priorities, or because more information is now available for access.

Appendix A: Summary of small-medium business interviews

Below, we summarise the key findings from our interviews with small to medium business representatives.

Interview sites and participants

Small to medium business interviews consisted of 13 female and 18 male business representatives (either owners or senior employees). Although we had intended to have equal numbers of male and female interviewees (16 of each), we had fewer numbers of females for two reasons: one the recordings for Chapius East was not clear and was excluded, and in two other of the sites (Atangurua/Atabulu and Freshwota 1) there were no women available to talk who owned or worked for a small business. In those areas, two male business representatives were interviewed instead.

Types of activities

The businesses that our participants owned or managed varied across the survey sites. The most common activities involved retail (16 businesses), including general trade stores and retail of fresh fish, fuel, clothes (e.g. second hand clothes), TVL and Digicel credit cards, and automobile parts. Other participants' business activities included automobile mechanic workshops, rental properties, guest houses, transport businesses (bus, taxis and public land and sea transport), kava farming for sales and kava bars, baking, cattle farming, copra production and sales, peanut production and sales, sandalwood, agents for lobster farming and sales (e.g. to sell to Port Vila agents), agents for production of local artifacts and handicrafts, and tourist related income activities (e.g. stalls).

Single or multiple business focus

Many business representatives focused on more than one type of business. For example, the female business owner in Vetumboso village owns a cattle farm, a trade store, and a produce stall, and also on-sells dried copra from the producers, and sells some kava juice as a small side business. A male business owner in Port Olry operates fresh fish, trade, and fuel retail outlets. A total of fifteen interviewees were involved in more than one business. These were businesses in Lenakel, Lamnatu, Umej, Lamen Bay, Ngala, Freshwota, Blacksands, Vetumboso, Port Olry, Atangura/Atabulu and Unpongkor.

Gender dimensions

The 31 men and women interviewed either owned the businesses themselves or were in partnership with other business men or business women or were co-owners with their husbands or wives. The representatives were all engaged in the business for a salary, so the small business also created employment for other locals.

Of the 13 female interviewees, most of them (the 11 from Lenakel, Lamnatu, Anelghowhat Umej, Ngala, Blacksands, Sola, Vetumboso, Port Olry, Port Narvin, Unpongkor) were owners of the businesses, whilst the other two (from Lamen Bay and Levetlis) were representatives looking after the business. The representative (store assistant) from Lamen Bay was a relative of the trade store owners (husband and wife) and the business representative from Levetlis was the secretary of the Women's club handicraft business. In addition, only one woman from Lenakel part-owned the business with extended family (her husband's brother and his wife). Three women (from Port Olry, Port Narvin and Unpongkor) co-owned and managed their business with their husbands, whilst 7 women (from Lamnatu, Anelghowhat, Umej, Blacksands, Sola and

Vetumboso) owned the business and managed the business either themselves and sometimes with or without the help of their husbands.

Businesses that the women were engaged in included: retail shops, fuel station (e.g. Lenakel seaside fuel station), copra production and purchase, duty-free and handicrafts shops and stalls and guesthouse. Most (7) of these women own or manage some sort of retail (trade store, fuel, Digicel/TVL refills) business. Four of the seven women have other small side businesses, apart from the retail business. For example the woman interviewed in Ngala had a retail shop and also produced and sold peanuts (to markets in Port Vila). The fuel station owner in Lenakel also runs a tyre services and land transport (taxi) service.

In addition to retail, two women (in Anelghowhat and Umej) were engaged in duty free businesses to sell to the many cruise ships (e.g. Pacific Pearls and P&O) often visiting the island. This business mainly involves buying and selling Asian arts and crafts, as well as clothes from the Port Vila duty free shop, to incoming tourists to Mystery Island. Only one woman (from Port Olry, in Santo) operated a tourist guesthouse.

The two women business representatives from Erromango (Unpongkor) and Pentecost (Levetlis) were involved in local handicrafts business such as production and sales of woven mats and baskets. The business representative from Levetlis is the secretary to the Pentecost women's business club. This club comprises women with similar interest in production and sales of handicrafts.

As for the men, 14 out of the 18 business interviewees (from Lamnatu, Anelghowhat, Umej, Lamen Bay, Freshwota 1, Blacksands, Vetumboso, Chapius East, Port Olry, Port Narvin Unpongkor, Atangura/Atabulu (two male businesses) and Levetlis) were business owners. Two interviewees were part owners, one was a manager for his daughter's business, and one was supervising the business.

Most men interviewed were in retail type of businesses (11 in Lenakel, Lamnatu, Anelghowhat, Umej, Lamen Bay, Ngala, Blacksands, Port Olry, Unpongkor, Atangura/Atabulu and Levetlis). From these eleven, seven also owned other smaller businesses. These included lobster breeding and harvest; cattle farming, copra and sandalwood production; guesthouse owners; and automobile workshops.

Motivation for small business

There were varied reasons for starting small businesses across the research locations. These included:

- Experiences from working in other similar businesses
- Seeing the niche to start a business
- Long travel distance to nearest shop (overcoming convenience) or being close to the centre of a community (profiting from convenience)
- Need to support the family, e.g. pay children's school fees, pay for food, and pay bills
- Desire to utilise skills and knowledge gained from short business training
- Demand for services from the communities (this was commonly stated in the very remote islands of Vanua Lava in Torba.

The women, especially from Anelghowhat, Lenakel and Lamnatu (Tanna), commented they had been doing nothing and often asked their husbands for money and wanted to become independent by starting their own business to reduce reliance on their husbands. The women in Sola and Vetumboso (Vanua Lava) were inspired by the geographical isolation of the place and lack of services to the area and the need to support their families' needs.