Pacific Institute
of Public Policy

Social and economic impact of introducing telecommunications throughout Vanuatu

RESEARCH FINDINGS REPORT
November, 2008

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Research Findings Report
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Executive summary

What did we do?

This study explores how people in urban and rural Vanuatu exploit access to telecommunications, and how the use of telephony impacts on household livelihoods. It also considers the implications of telecommunications for gender dynamics, small and medium enterprises, and rural-urban linkages.

How did we do it?

The study draws on recent research conducted by the British Government Department for International Development (DFID), assessing the impact of telecommunications on poverty reduction and rural livelihoods in India, Mozambique and Tanzania[1]. The underlying conceptual framework of the DFID study uses the Sustainable Livelihoods Framework[2].

In adapting the DFID model, a detailed household survey was developed incorporating contextual changes to ensure relevance for Vanuatu. A total of 185 respondents were randomly selected from six locations: three rural (Isini, Lamnatu and Port Olry) and three urban (Freswota 1, Blacksands and Chapuis East). The research sites represent a cross-section of rural and urban Vanuatu.

The survey sets out to find how households use telephony and how such uses impact on livelihoods. It identifies the linkages between contexts (rural/urban), patterns of use (including access and/or ownership of phones) and impacts on livelihoods (livelihood strategies and vulnerability of context). Comparing and contrasting rural and urban households is particularly important in the context of the dual (urban-rural) economy of Vanuatu.

A further 90 individuals participated in semi-structured interviews and focus group discussions to probe deeper into the impact of telephony on individuals and households. Drawing on the survey and qualitative research methods, the report presents three case studies: Small and Medium Enterprises & Telecommunications, Gender and Telecoms, and Rural - Urban Linkages and Telecoms.

Why did we do it?

In response to global moves towards liberalisation and the rapid developments in telecommunications technology, the Government of Vanuatu faced considerable pressure to end the TVL[3] exclusive franchise prior to its 2012 end date. The argument for breaking the monopoly centred on promoting competition and separating out the regulatory powers from service providers. The end result anticipated better network coverage and lower prices.

1. 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 Organization for UK Department for International Development.

2. The Sustainable Livelihood Framework has four key interrelated components: vulnerability, assets, structures and livelihood strategies (Bebbington 1999, Kolmair and Gamper 2002 and www.livelihoods.org).

3. Telecom Vanuatu Limited - at the time a three way joint venture between the Government of Vanuatu, Cable and Wireless and France Telecom.

The Telecommunications Act was amended in 2007, opening the market to competition. As part of negotiations to end the exclusive license arrangement, the Government surrendered its one third share holding in TVL, which became a fully privately owned entity. In December 2007, Caribbean based company, Digicel, was granted a licence to provide mobile telecommunications in Vanuatu. Presently, Digicel operates in five markets in the Pacific (Samoa, Papua New Guinea, Tonga, Vanuatu and Fiji) with an experimental license in the Solomon Islands.

Lessons from other from other developing countries suggest both pro-poor and distributional inequalities arise from differential access to telecommunications. However, to date there has been little research specific to Vanuatu or the Pacific more generally. The differing geographic, cultural and economic context of Vanuatu needs to be considered in any understanding of the widespread introduction of telecommunications services throughout the country; particularly in rural areas that have been largely isolated from urban centres and activities.

What did we find?

The study offers a snapshot of behaviour and impact of telephony on livelihoods at a time when the telecommunication sector was opened up to competition and a new service provider first commenced operation.

Respondents were generally aged between 25 and 35 years, and most had secondary education. The average household size of was 5.7 with 3.1 adults and 2.6 under the age of 18. There was an imbalance in gender of respondents because men were more willing to participate and more forthcoming in their responses than women were. Migration, both within Vanuatu and overseas, was an integral part of life for respondents, with the majority of respondents reporting household members living in other parts of Vanuatu or overseas. Rural respondents generally worked in agriculture whereas urban dwellers were more likely to engage in small business such as running a kava bar, retail store or working for others.

It is important to note that the purpose of the study was not to report on tele-density, but rather to investigate behaviour patterns of users telephony in general and mobile phones in particular.

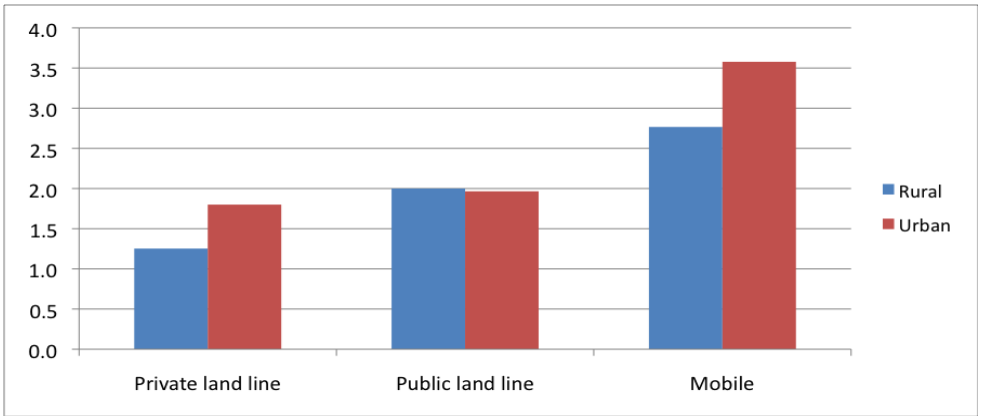
The key findings include:

Increasing use of and access to mobile telecommunications throughout Vanuatu and in rural areas in particular[4]:

- *Approximately 51 per cent of respondents indicated the first mobile in the household was acquired in the last year, 13 per cent in the last 1-2 years, and 33 per cent more than 2 years ago.*
- *The majority of rural respondents (80 per cent) had first acquired a mobile phone in the last year.*
- *The majority of those who do not own a mobile intend to acquire one in the next year.*

4. It is not possible to quantify without access to commercially sensitive information from the two mobile service providers, besides tele-density does not provide an accurate measure of usage as this study confirms collective access through shared usage (unlike developed markets where ownership translates to usage).

Frequency of use of different types of telephony



As demonstrated in the figure above, mobile is the preferred mode of telephony in both rural and urban areas. Most respondents said they did not use a private land line.

Primary reason for current non-use remains the high cost of using telephony including costs of charging and opportunity cost of finding network coverage:

- *The 'digital divide' between rural and urban Vanuatu is shrinking, although there are still marked differences in access to services such as water, electricity, telephone, television, fridge, radio and computer between rural and urban areas.*

- *Only 47 per cent of rural respondents had access to electricity compared to 85 per cent of urban dwellers. The lack of access to electricity poses a significant hindrance to mobile phone use in rural areas. As one respondent from Lamnatu stated: "I pay as much as your monthly electricity bill just on charging my mobile".*

- *Rural users are more likely to share mobile phones with other household members whereas urban dwellers are more likely to own individually.*

The impact of telecommunications on livelihood is positive for social and financial capital:

- *Both rural and urban users reported increasing access to telecommunications is leading to more contact with family and friends, improving information regarding family events, reducing cost of travel, and increasing speed of communication.*

- *There is a positive relationship between perceived access to telecommunications and perceived livelihood improvements.*

Users generally consider telecommunications as critical for economic activity and would find it difficult to continue if they no longer had access:

- *Telephone is valued most in communicating for social information, emergencies, and education, but has not replaced face-to-face communication in business activity.*

- *The advent of competition in the telecommunication market is affecting the value chain of businesses: reducing the cost of doing business (incremental benefits) and expanding business opportunities (transformational benefits).*

- *Of all business costs incurred, the highest costs were in logistics – mainly transportation to and from the market.*

- *All of the interviewees agreed mobile telephone was reducing/expected to reduce transactions costs of doing business.*

- *Women selling at the market in Luganville and Port Vila were earning significantly more than those in Tanna, and suggested their expenditure on telephony reduced travel and other costs.*

The the benefits of mobile telephony also comes with social and economic costs:

- *Interviewees with higher cash incomes expressed anxiety over the added financial burden of having a mobile telephone, including subsidising relatives for purchasing credit and/or charging costs.*

- *In rural areas, in particular, interviewees were concerned about the unprecedented increases in speed of information and communication flow introduced by mobile telephony.*

Gender and geography were important in determining ownership and use of mobile telephony:

- *Lessons from other developing countries suggest that policies aimed at increasing access to telephony does not 'trickle down' equitably.*

- *In Vanuatu, men are more likely to own mobile phone than women in both rural and urban areas.*

- *Women's ownership of mobile phones is shaped by their relative influence in the intra-household decision making processes.*

- *Women were more likely than men to lack awareness of how to use mobile phones.*

- *Greater access to telephone services is playing a critical role in 'managing distance' between rural and urban households, and facilitating the redistribution of resources to rural households.*

The level of sophistication in the use of mobile phones is likely to increase with more experience:

- *Rural dwellers in particular were generally only using basic calling functions of mobile phones.*

- *Business people have yet to exploit the potential uses of telephony to promote existing businesses or start new enterprises.*

- *Examples from developing countries illustrate different ways in which the government and its development partners can employ mobile telecommunications as an innovative platform to target enterprises.*

The telecommunication companies have introduced commendable marketing strategies to increase the affordability to their customers:

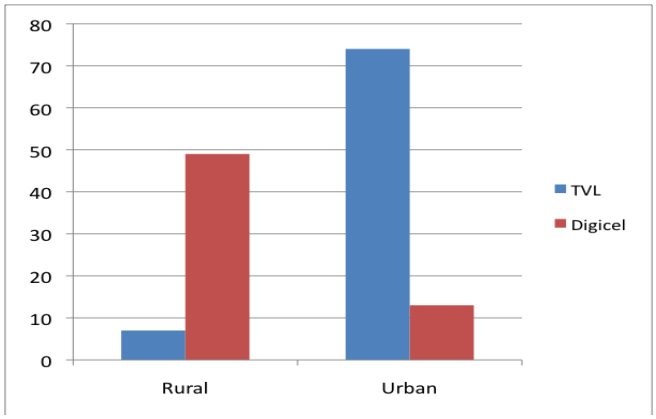
- *Low priced new handsets, reduced cost of SIM, lower tariff rates and per second billing.*

Generally, the preferred service provider in rural areas was Digicel and TVL in urban areas:

- *Urban respondents who used both service providers suggested Digicel was better for keeping in touch with family and friends in the islands, whereas the level of service provided by TVL was seen to improve dramatically since the advent of competition.*

- *Rural respondents tended to prefer Digicel in areas where the company was providing network coverage for the first time.*

Mobile telephony usage by service provider



What do we need to do next?

In order to capitalise on the benefits of improved access to telecommunications, policy makers, private sector, and other interested stakeholders need to consider options for addressing affordability, improving complementary infrastructure, reducing gender inequalities, and facilitating the transfer of resources to rural areas.

Recommendation 1: Investigate private sector initiatives together with public-private partnerships to address issues of affordability, drawing on examples from other countries.

Recommendation 2: Improve complementary infrastructure to fully realise the benefits of increased access to telecommunications, including roads, shipping and electricity.

Recommendation 3: Disseminate examples of how mobile telephony can benefit small and medium enterprise development.

Recommendation 4: Target women with information campaigns to encourage use and better understanding of mobile telephony to assist in mitigating gender inequalities in access to telecommunication services.

***Recommendation 5: Carry out further research to investigate how mobile telecommunications can facilitate the* redistribution of resources to rural areas.**

Recommendation 6: Update this research project in twelve months time to confirm findings and track any changes.

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1. Introduction

The recent introduction of competition in mobile telecommunications has been a significant milestone in Vanuatu's social and economic development. This study explores how people in urban and rural Vanuatu exploit access to telecommunications, and how the use of telephony impacts on livelihoods.

Breaking the monopoly

Historically, telecommunication services have been operated by monopoly providers the world over. Following privatisation of the sector in 1992, Telecom Vanuatu Ltd (TVL) was established as a joint venture owned equally by the Government of Vanuatu, Cable and Wireless and France Telecom, and given an exclusive license to operate all telecommunication services until 2012.

As sole provider, TVL has long suffered accusations of poor service, high calling costs and limited mobile network coverage. Tele-density levels in Vanuatu remain low relative to other Pacific countries (as seen in Table 1.1 below). By 2007 there were 23,300 mobile phone subscribers and 7,300 fixed line subscribers, representing a penetration level of 3% and 11% respectively.[1]

Table 1.1: Tele-density in the Pacific[2]

Country	GDP per capita 2006 - constant 2000 US $	Fixed %		Mobile %		Internet Users %	
		2002	end 2007*	2002	end 2007*	2002	end 2007*
Palau	6697	35.0	41.0	10.0	52.0	10.0	25.0
Fiji	2257	12.4	13.0	13.3	24.8	6.6	9.4
Marshalls	2050	6.0	8.0	1.1	8.5	2.6	14.4
FSM	1967	10.0	12.0	3.4	19.4	4.4	13.0
Tonga	1658	11.3	13.3	3.4	30.0	2.2	3.1
Samoa	1578	6.5	11.0	1.5	46.0	2.2	4.5
Vanuatu	1255	3.2	3.9	3.8	11.5	3.5	7.5
Solomon Is	696	1.5	1.5	0.2	2.2	< 0.5	1.5
PNG	639	1.1	1.1	0.3	5.1	1.3	1.8
Kiribati	546	5.1	4.3	0.6	0.5	2.0	2.2
Timor Leste	678 oil 321 non-oil	0.2	0.3	1.0	5.7	< 0.5	<1.0

** Note: 2007 or latest available. Updated subscriber data may be difficult to obtain. Where available, data are sourced directly from operators, otherwise from ITU's ICT indicators Database, 2006. Source for income data: World Development Indicators, 2007.*

1. TVL Presentation at USP Emalus Campus 13 September, 2007

2. Reproduced from the World Bank (2008), *Telecommunications in the Pacific. Background Paper for Pacific Economic Survey, 2008.* Jakarta, Indonesia: World Bank. Page 5. http://www.pacificsurvey.org/UserFiles/PS-BackgroundPaper-Telco.pdf

In response to global moves towards liberalisation and the rapid developments in telecommunications technology, the Government faced considerable pressure to end the TVL exclusive franchise prior to its 2012 end date. The argument for breaking the monopoly centred on promoting competition and separating out the regulatory powers from service providers. The end result anticipated better network coverage and lower prices.

The Telecommunications Act, 1989 was amended in 2007, opening the market to competition. As part of negotiations to end the exclusive license arrangement, the Government surrendered its one third share holding in TVL to the other two shareholders - France Telecom and Cable and Wireless.

The changes to the 1989 act also provided for the establishment of an independent telecommunications regulator with delegated powers to grant licences and ensure compliance with licensing conditions. The Minister cannot exercise any power or duty delegated under the amended act. As part of the regulatory reform process, the Government of Vanuatu is drafting a new Telecommunications Bill[3] to supersede the amended 1989 Telecommunications Act and Telecommunications Policy.

The Government of Vanuatu sought to gradually phase out the monopolistic market structure in telecommunications. Initially only one extra license for mobile services was to be granted. In December 2007, that new licence was issued to Caribbean based company Digicel. A condition of the licence required Digicel to launch its service within six months and cover 75 per cent of the population (Minister of Infrastructure and Public Utilities, 2008).

The Government of Vanuatu draft Telecommunications Policy Statement[4] anticipates that by 2010, following the transitional period, the telecommunications market will be fully opened for new entrants interested in establishing new telecommunications networks. However, it further highlights some specific telecommunications services that might be provided from the beginning of competition under a general license or exemption order under the proposed legislation, including: international telephony and voice over internet protocol (VoIP), provided that they use another company's telecommunications network.

The new regulatory environment is a work in progress and will cover the transparent issue of licences, enforcement of licence conditions, dispute resolution and the maintenance of appropriate measures to avoid anti-competitive practices ('Ofa 2008). Additionally, the new legislation is expected to introduce an Universal Access Fund (UAF) with the aim of subsidising telephony and internet operations in loss making (rural) areas. The UAF is to be financed by international donors and a licensing levy payable by the service providers.

Moreover, in order to ensure effective competition in the open market place, new telecommunications networks licenses will not be granted to companies with common ownership or similar control of existing licenses.

The legislation requires the providers of telecommunications services to ensure inter-connectivity between networks.

3. The draft *Telecommunications Bill* 2007 was expected to be tabled in Parliament by September 2007, but may have been delayed due to the national election held in September, 2007.

4. Vanuatu Government (2008) *Telecommunications Policy Statement of the Government of Vanuatu, Proposal for Public Consultation*, Port Vila, March 2008.

Why study telecommunications?

Lessons from other parts of the world suggest both pro-poor and distributional inequalities arise from differential access to telecommunications. Existing research demonstrates access to telecommunications can increase GDP, trigger inflow of foreign direct investment, enhance market efficiencies, empower women and others. At the same time, access to telecommunications can reproduce and exacerbate existing inequalities along gender, income, and rural and urban lines. However, to date there has been little research specific to Vanuatu or the Pacific more generally. The differing geographic, cultural and economic context of Vanuatu needs to be considered in any understanding of the widespread introduction of telecommunications services throughout the country; particularly in rural areas that have been largely isolated from urban centres.

The aims of this research addresses two questions:

How do households and individuals use telephony in rural and urban areas?

How do such uses impacts on household and individual livelihoods?

In answering these questions, the study will identify the linkages between contexts (rural/urban, gender, age, income, small enterprises), patterns of use (including access and/or ownership of phones) and impacts on livelihoods (livelihood strategies and vulnerability of context).

Comparing and contrasting rural and urban households allows us to understand the impact on telephony in these distinct geographical settings. This is particularly important in the context of the dual economy of Vanuatu, and where increasing rates of migration and urban growth have left households stretched between rural and urban areas. Furthermore, households are rarely unified entities and need to be disaggregated to examine the various ways in which access to and usage of telecommunications differ along gender, age, and income lines.

Finally, patterns of use and impact of telephony on small enterprises will help identify the role of telephony on private sector development in Vanuatu. Understanding the linkages between access to telephony and the impact of usage on livelihoods, gender, rural-urban migration, and small enterprises will assist informed policy making not only in relation to the liberalisation of telecommunications, but also wider social and economic development programs.

What did the study include?

Literature review (Chapter 2)

The study includes an overview of the existing literature on telecommunications in relation to developing countries and situates the current research on Vanuatu within it. In particular the review explores market structures and regulatory frameworks, macro and micro economic impacts of telecommunications and the socio-cultural patterns of use and impacts of telephony.

Conceptual framework (Chapters 3 & 4)

The study draws on recent research conducted by the British Government Department for International Development (DFID), assessing the impact of telecommunications on poverty reduction and rural livelihoods. The underlying conceptual framework of the

DFID study uses the 'Sustainable Livelihoods' approach (see Chapter 3). This allows it to use a multi-layered and interactional approach to understand patterns of telephony use and the impact of such uses on livelihoods, in various socio-economic contexts.

Research findings (Chapters 5,6,7 & 8)

In adapting the DFID model of quantitative analysis, a detailed household survey was developed; drawing on the DFID questionnaire and incorporating contextual changes to ensure relevance for Vanuatu. Six study locations were selected (three rural and three urban). A total of 185 people were surveyed and an additional 90 individuals participated semi-structured interviews and focus group discussions to probe deeper into issues. Drawing on the survey and qualitative research methods, the report presents three case studies: *Small and Medium Enterprises & Telecommunications, Gender and Telecoms, and Rural - Urban Linkages and Telecoms.*

What are the issues?

The issues arising from the study are summarised in ***Chapter 9*** of this report. In addition to many specific findings, several recurrent themes emerged, viz:

- since the advent of competition, there has been a significant increase in the uptake of mobile phones throughout Vanuatu, particularly in the rural areas
- mobile telephony has reduced the 'digital divide' between rural and urban Vanuatu
- mobile phones are mainly used for social networking, to reduce the time and cost of travel, and for emergency purposes
- the private sector has yet to fully exploit potential commercial benefits and we are yet to see significant entrepreneurial activity through new business start-ups
- complementary infrastructure is frequently lacking, most importantly electricity, which was cited as a key reason for non-uptake in serviced areas
- affordability remains a key concern and influences access to telecommunications.

2. Literature review

The impact telephony in general and mobile telephony in particular in developing countries has generated considerable discussion and debate within the disciplines of economics, anthropology and sociology amongst others. The major studies pertaining to telephony in developing countries generally fall into one of the following categories: market structure and regulatory framework; economic (macro and micro) impact of telephony; or socio-cultural patterns of use and impact of telephony.

Broad trends in the literature

Much of the recent literature on telecommunications in developing countries has focused exclusively on mobile telephony. This is because developments in wireless technologies (such GSM, Wireless Local Loop, CORDECT and others) have substantially reduced the capital expenditure to roll out infrastructure and substantially increased access to mobile telephony in low-income countries (Souter, Nigel et al. 2005).

Engaging with this burgeoning literature on mobile telephony in developing countries is relevant in the context of Vanuatu. The market saturation of mobile telephony has far outpaced that of fixed line. The Pacific Economic Survey (AusAID 2008) states that the number of fixed line subscribers increased from 3.2 per cent in 2002 to 3.9 per cent in 2007. During the same period, the number of mobile subscribers grew from 3.5 to 11.5 per cent. The recent changes in telecommunications policies is expected to further increase the diffusion of mobile (but not necessarily fixed line) telephony throughout the country. According to the performance bond in the licensing agreement between the Government of Vanuatu and Digicel (2007), the new mobile provider must provide 85 per cent mobile network coverage within 18 months of its launch[5].

Nevertheless, as this study relates to the impact of both mobile and fixed line telephony, studies pertaining to fixed line have also been discussed as appropriate.

Market structure and regulatory framework

There is a large and growing body of literature focusing on the market structure and regulatory framework of telecommunications in developing countries. Research demonstrates how contextual factors (such as income and geography) along with services provided (such as pre-paid versus post-paid) by telecommunication companies have affected rates of diffusion of telephony in developing markets (see: Garbacez and Thompson 2007, Hodge 2005, Balimoune-Lutz 2003, Kamssu 2005).

The studies on regulatory framework focus on the role that policy and competitive environments play in the availability and affordability of telephony in developing countries. There is a consensus that 'liberalisation' and 'privatisation' of the telecommunications industry is crucial for securing market efficiency and affordability of telecommunication services. Studies point to the inefficiencies of state-sponsored telecommunication sectors in disciplining the market and creating affordable and widely accessible means

5. Digicel launched operations in Vanuatu on 25 June, 2008.

Because of the dearth of reliable macroeconomic data and diffusion of telephony in Vanuatu, it is difficult to isolate the impact of mobile telephony on economic growth.

of telecommunications (see: Varoudakis and Rossotto 2004, Mureithi 2003, Wallsten 2001). Similar findings have been reported with regards to TVL's monopoly on Vanuatu's telecommunications sector (World Bank 2008).

Nevertheless, other scholars have pointed to the inability of liberalisation and privatisation policies alone to the address the 'digital divide' and the inequalities in the use of telecommunications in rural and urban areas and between rich and poor users (see: Shanmugavelan and Wariock 2007, Harwit 2004). These studies highlight the role of market and non-market forces for getting policies of 'universal access' right and ensuring equitable access to telecommunications (see: Mahan 2003, Milne 2006, Anderson 2006).

The above literature on market structure and regulatory framework is important. However, given the scope of this research, the focus of the present review will be on studies assessing the implications of telecommunications in Vanuatu. Questions of 'digital divide', 'market efficiency', and 'universal access' will nevertheless be revisited in the conclusion and recommendations of the study. Findings of the research together with lessons from experiences in other developing countries will be drawn upon in the process.

Economic impact of telecommunications on development

A plethora of studies have considered the impact of telecommunications from both macro and micro economic perspectives (see: Sridhar and Sridhar 2006, Garbacz 2007, Waverman 2007, Vodafone 2005, Williams 2005, Ruben 2006, Jensen 2007). To illustrate, the compilation of studies commissioned by Vodafone (2005) on the impact of mobile telephones in Africa demonstrate positive correlation between diffusion of mobile telephony and various macroeconomic indicators such as GDP and inflow of foreign direct investment. Micro economic studies further corroborate the linkages between mobile telephony and economic outcomes. For instance, by drawing on data from a fishing community that adopted mobile phones in India, Abraham (2006) finds widespread use of mobile phones lead to greater market efficiencies in terms of reduction in price fluctuations, market integration and gains in productivity.

While this literature has much to add on the economic impacts of telephony, the macroeconomic studies suffer from methodological and theoretical limitations when applied to understand impact of telephony in Vanuatu. Methodologically, because of the dearth of reliable macroeconomic data and diffusion of telephony in Vanuatu, it is difficult to isolate the impact of mobile telephony on economic growth. Theoretically, notable development economists such as the Nobel laureate Amartya Sen (1999) have long argued that economic development must incorporate multiple development indicators (such as health and education) which include but is not limited to indicators (such as GDP) for measuring economic growth. Such understandings of development is widely endorsed by the development community including multi-lateral and bi-lateral donors. In addition to the above, micro economic studies on telecommunications in developing countries focus explicitly on specific cases and therefore, pose a number of difficulties in replicating similar methods across different countries and cases.

In comparison to the above limitations of economic studies, a recent study commissioned by DFID on the economic impact of telecommunications on rural livelihoods and poverty reduction (Scouter et al. 2005) provides a more holistic understanding of implications of telecommunications. As such, the research team has identified it as a suitable foundation on which to base the current study on socio-economic impact of telecommunications in Vanuatu. The next section will outline the theoretical and methodological foundations of the DFID study and how it will be adapted and refined for the Vanuatu study.

Interrelationship between telecommunications & development

In comparison to studies measuring the economic impact of telephony, the sociological and anthropological research on mobile telephony in developing countries takes a less deterministic approach and considers the interrelationship between telephony and users. Research has focused on the specificity of the patterns of use and access of mobile telephony together with the social and cultural implications of such uses.

Studies have described 'new uses of mobile' (Donner 2007) telephony including practices of leaving missed calls, leaving 'call me back' messages (Sey 2006, 2007, Cartier, Castells and Qiu 2005), and ways in which uses of mobile phone get enmeshed with pre-existing socio-cultural beliefs. For instance, the research by Agbu (2004) in Nigeria finds mobile handset are both the transmission and subject of a rumour that killer phones will bring disaster on their owners if they receive calls from specific numbers.

Scholars have also found that patterns of use differ along gender, age and other social differences. For instance, Skuse and Cousins (2008) find male youth in low-income urban households in Cape Town, South Africa use mobile phones for flirtation purposes and to interact and manage multiple sexual partners. Similar findings are also reported by Ellwood-Clayton (2003) on the use mobile telephony for expanding social networks and enabling new flirtatious dialogues by young men and women in the Philippines.

Along with differences in patterns of use, research has been concerned with inequalities in access to mobile telephony and innovative ways in which these inequalities are being overcome. Studies document how and why shared uses constitute prominent ways of accessing mobile telephony (Tall 2004, Skuse and Cousins 2008, Aminuzzaman, Baldersheim et al. 2003). For instance, Skuse and Cousins (2008) find most low-income households in urban settlements of Cape Town, South Africa view telephony as critical for maintaining local and distant social networks, promoting business interests and more. However, most households have access to but not ownership of mobile telephony. The authors describe ways mobile telephony is shared by neighbours and kins to receive calls whereas calls are made by 'container phones' (public booth) which cost less per minute.

Research demonstrates varying experiences and outcomes of telephony use in developing countries. On the one hand, studies highlight the positive outcomes of telephony use in maintaining financial and social linkages with relatives back home for diasporas in the Philippines (Paragas 2005), managing reputation and appearance of small enterprises in Tanzania (Kamga 2006, Mologna 2006), empowering women involved in the Grameen village phone in Bangladesh (Aminuzzaman, Baldersheim et al. 2003) amongst others.

On the other hand, studies demonstrate the role of telephony in accentuating inequalities between rural and urban areas, between the rich and poor in Indonesia (Rafael 2003), and in transforming social relationships by creating dependence on mobile in Uzbekistan (Wei and Kolko 2005). Still others argue that access and use of telephony can be simultaneously positive and negative. For instance, Skuse and Cousins (2007) argue that access to telecommunications in rural South Africa has both helped households sustain financially and socially by profiting from linkages with household members in urban areas and simultaneously accentuated economic inequalities within rural areas. Similarly, research by Law and Peng (2006) on working class, urban migrants point to the conflicting experiences with mobile telephony.

These studies suggest the patterns of use and access to telephony in developing countries is significantly different in comparison to developed countries where ownership

Some studies highlight the positive outcomes of telephony use, while others demonstrate the role of telephony in accentuating social and economic inequalities.

of mobile telephony is more prominent. There is no uniform impact of telephony across developing countries and much rests on the socio-cultural context in which telephony is accessed. Uncovering these contextual details and their implications for social and economic well-being will be critical for a more in-depth understanding of implications of telephony use in developing countries like Vanuatu.

The next section will therefore, discuss (1) the conceptual and methodological framework employed by the DFID, cross-country study on the economic impact of telecommunications on rural livelihoods and poverty reduction and (2) the importance of combining the approach taken by the DFID study with other research methods to elicit any sociological and anthropological insights in line with the above discussed literature.

3. Conceptual framework

This study builds on the conceptual and methodological framework of the DFID model[6] to assess the economic impact of telecommunications on rural livelihoods and poverty reduction.

Adapting the DFID study to Vanuatu

The emphasis of the DFID study on livelihoods is particularly relevant for understanding the underlying socio-economic context and implications behind people's access and use of telephony. Because the DFID study has been successfully conducted in three different developing countries (India, Tanzania and Mozambique), it is evident that the conceptual and methodological foundations can be employed in other developing countries, including Vanuatu.

The following chapter:

a. summarises the *Sustainable Livelihoods Framework*, which constitutes the conceptual framework used by the DFID study

b. identifies the ways in which the framework has been translated by DFID to understand the impact of telecommunications in developing countries

c. assesses the strengths and weaknesses of DFID's approach for the purposes of researching on the impact of telecommunications in Vanuatu

d. highlights how the current study in Vanuatu draws from and builds on the DFID study.

Sustainable Livelihoods Framework

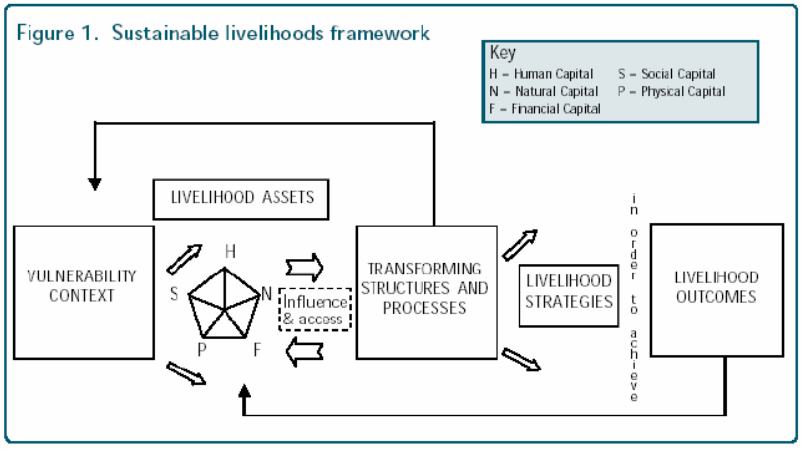
The DFID study on economic impact of telecommunications on rural livelihoods and poverty reduction in India, Mozambique and Tanzania researched the impact of telephone use on the livelihoods of telephone users. The conceptual approach of the study is DFID's 'Sustainable Livelihoods Framework'. Before going into detail on the DFID study, it is important to understand the Sustainable Livelihoods Framework and how it has been used by DFID to understand the importance of telecommunications on livelihoods in developing countries.

The notable development anthropologist, Robert Chambers, coined the concept of Sustainable Livelihoods. According to Chambers, "a livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base" (Chambers 1992).

6. 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 Organization for UK Department for International Development.

The Sustainable Livelihoods Framework views individuals and households as operating in a context of 'vulnerability'.

Figure 2.1: The Sustainable Livelihoods Framework



Source: DFID, *Sustainable Livelihoods Guidance Sheets*

To put it briefly, the Sustainable Livelihoods Framework views individuals and households as operating in a context of 'vulnerability'. Vulnerability is defined by trends, shocks and seasonality which, together or in combination, positively and negatively affect people's access to 'assets' and 'options'. Within this context, people access a variety of 'assets'—human, social, financial, physical and natural—which gain their meaning and value through prevailing social, institutional and organisational environments. This environment also influences people's livelihood strategies—ways of combining and using assets—that are open to them in pursuit of beneficial livelihood outcomes that meet their own livelihood objectives. As such, and as indicated in the above diagram, the Sustainable Livelihood Framework has four key interrelated components: vulnerability, assets/capitals, structures and processes or livelihood strategies (Bebbington 1999, Kolmair and Gamper 2002 and www.livelihoods.org).[7] The approach has gained widespread recognition because of the following (Murray 2001):

- it is people centred
- it acknowledges multiple influences, actors, livelihood strategies and outcomes
- it provides a dynamic understanding of interactions between assets and structural constraints
- it is built on people's strengths and their access to assets; emphasises principles of sustainability
- it enables understanding of macro-micro linkages.

With regards to the latter point, the framework emphasises the importance of understanding how macro level policy and institutions interact with and link to livelihood options of individuals, households and communities.

From a development intervention perspective, the framework seeks to develop an understanding of the factors that underlie people's choice of livelihood strategy with the aim of reinforcing the positive aspects (factors which promote choice and flexibility) and mitigating constraints or negative influences. The framework has been championed by

7. For more information, refer to the following:
Bebbington, A. (1999) Capitals and Capabilities: A Framework for Analyzing Peasant Viability, Rural Livelihoods and Poverty, World Development, Vol.27, No.12, pp.2021-2044.
DFID (2002) Sustainable Livelihoods Guidance Notes, www.livelihoods.org
Kollamair, S. and S. Gamper (2002) *Sustainable Livelihoods Approach*. Development Study Group, University of Zurich.

DFID and is also endorsed by a number of bi-lateral and multi-lateral agencies[8] (Carney et al. 1999). The framework has also been widely used by scholars to study livelihoods in varying contexts (Bagachi et al. 1998, Ellis 2000, Goldman et al. 2000, Francis 2000) as well to understand the impact of technology and development intervention on livelihoods (Skuse and Cousins 2007, 2008, Souter et al. 2005).

The Sustainable Livelihoods Framework and the economic impact of telecommunications

The DFID study on economic impact of telecommunications on livelihoods begins with the assumption that 'information, communication, and knowledge' are the major outcomes of telecommunications. These in turn, are critical for people's ability to develop appropriate sustainable livelihoods strategies. As such, it can be argued that telecommunications is critical for each key component of the sustainable livelihoods framework: vulnerability context, assets/capitals, structures and processes and livelihood strategies.

a) Vulnerability context: Much of the vulnerability that people face emerges from knowledge and information asymmetries. For instance, lack of access to reliable information can severely constrain small and medium enterprises in low-income countries. Telecommunications can help by improving access to information about market trends, prices, fluctuations and allow these enterprises to compete effectively.

b) Assets/Capitals: Access to information, knowledge and communication can help significantly in augmenting human capital, social capital and in turn, financial capital.
c) Structures and Processes: Access to information is crucial for citizens to hold government and non-government organisations accountable. The ways in which telecommunications are regulated have an impact on people's access to relevant information.

d) Livelihood strategies: Regular and up-to-date access to information about options and opportunities can assist individuals and households in improving livelihood strategies.

How applicable is the DFID study for Vanuatu?

The strength of DFID study's approach is that, in drawing on the sustainable livelihoods framework, it is able to provide a multi-dimensional approach to understand the underlying context in which people use telephony, patterns of telephony use and the impact of such uses on livelihoods. The DFID study distils the four components of the Sustainable Livelihoods Framework (as identified above) into three key topics for research - capitals (context), patterns of use, and the impact of such uses on livelihood strategies. Reflecting the complexity of the underlying framework, each of these key topics must consider many different dimensions.

Capital: Livelihoods include financial, human and social capitals. Furthermore, multiple indicators are used to assess each capital. For example, when assessing financial capital the following are considered: occupation, land tenure, flow of remittances and ownership of material assets.

Patterns of Use: Patterns of use of telephony incorporates the following - use of telephony vis-à-vis other forms of communication; different types of telephony (fixed line and mobile, public and private); access and ownership of telephony; different uses of telephony (call back, SMS) amongst others.

8. Carney, D. et. al. (1999) *Livelihoods Approach Compared: A brief comparison of the livelihoods approaches of the UK Department for International Development (DFID), CARE, Oxfam Department for International Development and the United Nations Development Programme (UNDP)*. London: DFID.

Telecommunications is critical for each key component of the sustainable livelihoods framework: vulnerability context, assets/capitals, structures and processes, and livelihood strategies.

A household is understood as having 'access' to telephony when its members can use a telephone facility within a reasonably convenient distance at a price that is affordable in comparison to the real and opportunity cost of alternatives.

The DFID study is cognisant of how telephony is used in developing countries. Research on telecommunications use in other countries has shown telephony is often collectively accessed and not always privately owned (refer to literature review). A household is understood as having 'access' to telephony when its members can use a telephone facility within a reasonably convenient distance at a price that is affordable in comparison to the real and opportunity cost of alternatives.

Impact of Telephony: The DFID framework uses direct and indirect ways of measuring the impact of telephony on livelihoods. Each respondent is asked how he/she views his/her livelihoods to have been impacted by access to telephony. This is in spirit of the people-centred dimension of the sustainable livelihoods approach.

The Vanuatu study can profit tremendously from DFID's multi-layered conceptual and methodological framework. The fact that this framework has already been used to understand the impact of telephony in three different countries and contexts further points to its broader applicability in Vanuatu.

Notwithstanding this, the approach suffers from the following limitations which must be addressed in the Vanuatu context.

Until recently, access to telephony has been generally limited to urban areas and is only now reaching rural communities. The focus of the DFID study is on 'rural livelihoods'. Focusing on rural areas in Vanuatu is important because majority of the population resides in rural areas. But to get a better understanding of telephony use and its impact on users, urban areas and linkages between urban and rural must be considered.

The focus of the DFID study is on 'households'. Focusing on households is important in Vanuatu for understanding the impact of telecommunications in rural and urban areas broadly. But, households are rarely unified entities. Studies in Vanuatu (see Chapter 7: Case study on gender and telecommunications) point to the differences in roles and responsibilities along gender and age lines within the household. Understanding the impact of telecommunications at the intra-household level and amongst various social groups is therefore equally pertinent.

The DFID study used one survey for households and small enterprise owners. For households the survey was randomised whereas the small enterprise owners were selected. The assumption was that households and small enterprise owners would use and be impacted by phones differently. However, the survey was designed primarily for household level data collection and incorporated only a few business related questions. It is important to use different research methods to understand impact of telephony on households and small enterprises.

The DFID study focuses on telephony in particular but also attempts to answer questions related to usage of internet. However, the use of internet in Vanuatu is minimal (Pacific Economic Survey 2008). Given the lack of data on the patterns of mobile and fixed line use and the impact of such uses, it is important to narrow focus in the context of Vanuatu.

The focus of the DFID study is to quantitatively decipher the implications of telecommunications on livelihoods. The advantage of this approach, when applied to Vanuatu, is that it provides a multi-layered understanding of patterns of use of telephony and the impact of such uses on livelihoods. Nevertheless, focusing exclusively on quantifying invariably reduces the number of responses made available to interviewees and limits the data collected.

4. Research methodology

Quantitative and qualitative research methods were employed to conduct the field research. The quantitative research draws on the household level survey adapted from the DFID study. The qualitative research included semi-structured interviews and focus groups to better understand gender dimensions of patterns of use and access to mobile telephony; the role of telecommunications in managing rural-urban linkages; and the use of telecommunications by small and medium enterprises in the country.

Quantitative Research Methods

The quantitative research methods build on the household level survey used by the DFID study. The strength of the DFID survey is its translation of the Sustainable Livelihoods Framework to understand the impact of telecommunications on livelihoods. The survey provides a multi-layered understanding of patterns of use of telephony, and impact of such uses on assets (financial, social and human) and livelihood strategies. Because the DFID survey has already been tested in three different developing countries, the broader components of the survey, as outlined below, have been retained in the Vanuatu example. The survey comprises the following components:

a) Social Descriptors (individual and household characteristics): relationship to the household head, age, gender, education and composition of the household.

b) Livelihood Descriptors: income of household members, property rights (access and ownership), material assets, livestock, and other economic status indicators.

c) Behaviour: use of telephony in comparison to other forms of communication, access and ownership of telephony, nature of use, expenditure on mobile, and reasons for use.

d) Impact of phone use on livelihoods: indicators for measuring vulnerability context (emergency), assets (financial, human, and social), and phone use vis-à-vis other forms of communication.

However, a number of changes were made to ensure relevance of the survey to Vanuatu and to simplify questions in order to improve response rates (an English version of the Vanuatu survey is attached in Appendix 1). Changes made to questions on 'access to electricity' and 'principal sources of livelihood' serves as examples of how the DFID survey was been made more relevant to the Vanuatu context. The DFID survey included a question on 'access to electricity' with responses relating to the frequency of access (e.g. none, occasional and constant). In Vanuatu, however, access to electricity should also include questions relating to sources of power such as diesel generator, solar/hydro and more. Specifying the form of access was important to understand how telephones were recharged and specific constraints faced by individuals and communities in accessing telephony.

The DFID survey included a question on 'principal sources of household income'. It allowed respondents to list three major sources of income, type of occupation, and

Research sites were selected in consultation with experts based in the Department of Statistics, Reserve Bank, SHEFA Provincial Government Council and the Vanuatu Cultural Centre.

approximate annual income. This question had to be modified to ensure responses from rural respondents. The vast majority of rural populations in Vanuatu have subsistence based economies, and sources of cash income[9] are few and fluctuate seasonally. In such a context, it would have been difficult to ask respondents to list how much they earn per year. The modified question specified primary sources of livelihood in rural and urban areas, type of occupation, monthly income, and how many months a year income is earned. As per suggestions from statisticians at the National Statistics Office, field researchers were also given ranges of income to help respondents who may find it difficult to respond to the question. Finally, changes were made to the wording of many questions, and practical examples are included to clarify other questions that were difficult to understand.

The modified DFID survey was reviewed by the following Vanuatu-based experts with research background:

Mr Paul Kaun (economist based at the Reserve Bank)

Ms Sarah McCartney (urban planner)

Mr Pita Toa (National Statistics Office),

Mr Simil Johnson (Acting Government Statistician)

Mr Emil Maels (planner, SHEFA Province)

Mr Nikunj Soni (economist and Executive Director of the Pacific Institute of Public Policy).

The survey was translated into Bislama and piloted before being finalised. Efforts were made to ensure each survey did not take longer than 45 to 60 minutes to complete.

Field research sites, data collection and data analysis

The household survey was carried out in six locations, representing a cross-section of Vanuatu rural and urban areas (see Table 4.1 below detailing research sites).

Table 4.1: Research locations

Research Sites	
Rural	**Urban**
Isini Village in Lenakel, Tanna	*Freswota 1*, Port Vila
Lamnatu Village in Middle Bush, Tanna	*Blacksands*, Port Vila
Port Olry Village, Santo	*Chapuis East*, Santo

These research sites were selected in consultation with experts based in the Department of Statistics, Reserve Bank, SHEFA Provincial Government Council and the Vanuatu Cultural Centre. Each of the settlements chosen has access to telephony (mobile and/or fixed line). Access to telephony is defined in terms of telephone facility within a reasonably convenient distance at a price which is affordable in comparison to the real and opportunity cost of other forms of communication. Precise data on the number of fixed lines and number of mobile phone subscribers in each locality was not made available to the researchers.

The following table demonstrates geographic area, number of households and total population of the area, and characteristics of the area.

9. The study only considers 'cash income' and not other forms of exchange (such as labour, in kind) that are features of subsistence and *kastom* economy in Vanutau.

Table 4.2: Characteristics of research locations

Research Site	Geographic Area (sq km)	Population		Characteristics of locations and people living in the area
		HH	Total	
Urban Locations				
Freswota 1	0.4	95	561	-Many different islands -Different occupations and economic status -Located in Port Vila
Blacksands	2.85	278	1862	-Mainly Tanna but also other islands -Different occupations and economic status -Located in the outskirts of Port Vila
Chapuis East (1-2)	0.5	118	653	-Different islands -Different occupations and economic status -Located in outskirts of Luganville
Rural Locations				
Port Olry	1.362	238	1062	-Fishing and agriculture -Good Road links to Luganville
Isini village, Lenakel	1.013	39	245	-Agriculture and non-farm income -Located adjacent to Lenakel town
Lamnatu village, Middle Bush	1.862	30	179	-Agriculture -Distant from nearest town -Dirt track and limited accessibility

The diversity of research sites minimises the impact of proximity of market and telecenter, predominance of particular types of economic activity, island groupings in urban areas etc. Furthermore, this was also to ensure a diverse range of responses from the study.

A total of 185 respondents were randomly selected for the survey. The research team ensured there were at least 30 responses in each of the locations specified above. The selection of sample size was based on international best practice on carrying out research on livelihoods in developing countries, with consideration to the constraints posed by the sparsely populated geographic terrain of Vanuatu. This sample size was decided for three major reasons, namely:

- According to the DFID Sustainable Livelihood Guidance For Conducting Research On Livelihoods In Developing Countries, 30 households are the minimum number required for statistically relevant data (Refer to research methodology on DFID Sustainable Livelihood Guidance Sheet, www.livelihooods.org).
- Because of time and resource constraints, the research team decided to choose the same number of households to be surveyed in each of the 6 locations. For example, using a ratio to calculate the number of households to interview, with 30 as the lowest, would have increased the total number of people to be interviewed.
- Most of the households in Vanuatu and in rural areas in particular are sparsely distributed. Census data (1999) from National Statistics Office suggested that many settlements in rural areas included less than 20 households. In the absence of more

A total of 185 respondents were randomly selected from six locations to participate in the household survey.

The household survey provided a broad understanding of patterns of use and impact of telephony on livelihoods in rural and urban areas.

recent data on population changes from 1999-2008, the research by necessity used the information available and as such areas that had at least 30 households have been selected.

Based on World Vision (2005) guidelines for conducting household level surveys in developing countries, a settlement map consisting of major landmarks and households were prepared with community members, and the households surveyed were randomly selected from the map.

Fifteen field researchers with prior experience conducting household surveys were selected to undertake the study in the field locations—Santo, Tanna and Port Vila—under the supervision of the research team.

There were a number of advantages of employing these field researchers, and are reflected in the consistencies and robustness of the research findings. The field researchers were well versed with the challenges of conducting household surveys such as understanding the questions before hand, approaching and encouraging interviewees to respond, explaining questions in an understandable manner to interviewees, ensuring responses corresponded well with the options made available in the questionnaire and were well recorded. Furthermore, instead of rotating the same field researchers from one island to another, the research team chose to use field researchers who were based in each island. This helped in ensuring the costs were within the field research budget, and involving individuals who had a thorough understanding of the context in which they were carrying out the research.

Despite this, the research team also confronted many challenges such as respondents' reluctance and inability to state the incomes they earned, inconsistencies in responses, and difficulties respondents faced in understanding questions. For instance, many women and rural respondents found it difficult to answer questions that asked them to evaluate the impact of telephony on livelihoods. Many of these challenges were inherent to the problems faced in conducting household surveys in general and in developing countries in particular. Nevertheless, the research team managed these problems in a number of ways such as by requesting the field researchers to crosscheck responses as and when appropriate, and stating the limitations of research findings in the report.

The methods for data analysis are, for the most part, consistent with those used in the DFID study. Most of the analysis is based on descriptive statistics such as percentage and mean/median for frequency and correlation analysis. The data analysis was conducted by the lead researcher with advice and support from those with sufficient background in conducting statistical analysis.

Case Studies & Qualitative Research Methods

The household survey provided a broader understanding of patterns of use and impact of telephony on livelihoods in rural and urban areas. However, by design the survey focused exclusively on households and not individuals, did not have a separate methodology for interviewing small and medium enterprises, and could provide in-depth information on impact of telephony on social groups and livelihoods. The study therefore combined the household level survey with qualitative case studies on gender dimensions of access to telephony, role of telecommunications in migration, and the impact of telephony on small-medium enterprises. The qualitative research methods were designed to triangulate, flesh out, and go beyond the household surveys.

Each of the case studies drew from the survey outcomes but focused on qualitative

research methods – semi-structured interviews and focus group discussions. The interviews allowed the interviewer and respondent to converse with one another on particular facets of telephony use and impact of such uses, enabled the interviewer to probe deeper into issues as and when required, and allowed respondents to elaborate on their responses (Pretty et al. 1995). Interview guidelines and questions were nevertheless used to clearly define goals and objectives of the interview process.

Focus group discussions acted as a forum for participants of no more than 6 to discuss their thoughts and experiences of issues identified by the research team and facilitated by the moderator (Fallon and Brown 2002).

A total of 90 individuals participated in the semi-structured interviews and 10 focus group discussions, with men and women separately, in Port Vila, Luganville, Port Olry and Middle Bush.

The research team found focus group discussions the most challenging and yet the most enriching source for data collection. Because mobile telephony was such a sensational topic at the time of the interview, interviewees were willing to discuss and debate with one another about the benefits and costs of mobile telecommunications. Nevertheless, many of the participants expected to be interviewed individually and had a difficult time understanding the relevance or importance of having a moderated discussion on a topic. Interestingly, rural respondents were more forthcoming in their response than urban respondents. For instance, in Luganville, it took the moderator 40 minutes of different 'breaking the ice' exercises before women interviewees started discussing amongst one another. At the same time, the moderators facilitating the initial focus group discussions were accustomed to carrying out household level surveys, and had a difficult time understanding what 'elaborate', 'in-depth', and 'discursive' answers entailed in practice.

The research team used a number of strategies to put respondents at ease such as by involving moderators who spoke local languages, offering food and drink, sharing experiences, encouraging the interviewees to express their concerns and thoughts to the research team etc. Furthermore, carrying out these focus group discussions was also a learning experience for the research team. The transformation of moderators from seeking a 'yes' or 'no' answer to mastering the art of focus group discussions was perhaps the most rewarding of learning experiences.

The following sections discuss the research findings from the household survey and the case studies.

The transformation of moderators mastering the art of focus group discussions was perhaps the most rewarding of learning experiences.

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5. Quantitative findings

The quantitative findings demonstrate that the recent liberalisation of the telecommunication sector in Vanuatu has significantly increased access to telecommunications, and offers a snapshot of behaviour and impact of telephony on people's livelihoods.

Overview of findings from the household survey

The household survey was carried out in six locations (refer Table 4.1) from which 185 respondents were randomly selected. The survey sets out to find how households use telephony in rural and urban areas, and in turn, how such uses impact on household livelihoods. It identifies the linkages between contexts (rural/urban), patterns of use (including access and/or ownership of phones) and impacts on livelihoods (livelihood strategies and vulnerability of context). Comparing and contrasting rural and urban households allows us to understand the impact on telephony in these geographical areas. This is particularly important in the context of the dual (urban-rural) economy of Vanuatu.

The study is a snapshot of behaviour and impact of telephony on livelihoods at a time when the telecommunication sector was opened up to competition and a new service provider first commenced operation. The report therefore, provides valuable, baseline evidence as to the impact of telecommunication liberalisation. Further research will be required to trace the impact over time.

The focus of the study is on telephony in general and on mobile telephony in particular. It does not include internet although some questions have been included to collect information on patterns of use. The decision to not include internet in this research project was based on the high internet costs and limited use of internet across the country. Moreover, there is currently only one internet service provider in Vanuatu.

The research findings are to some extent location and context specific. Nevertheless, the research locations present a cross-section of rural and urban communities in Vanuatu and the findings provide valuable insights into other parts of the country.

In order to discuss the findings from the household survey, this chapter is divided into the following sections:

Section A

Describes the 'context' in which this study is being undertaken, including demographic and household characteristics of the respondents, and the levels of prosperity in rural and urban households.

Section B

Identifies the patterns of access to information and communication; access and use of telephony in general and mobile telephony in particular; and reports on incidents of non-ownership and non-use of mobile telephony. The research findings also serve as base-line data on the impact of telecommunication liberalisation on access and use of

There has been a significant increase in access to and use of mobile telecommunications throughout Vanuatu, and in rural areas in particular, since the market has opened up.

mobile telephony. The key findings of this section include:

- significant increase in access to and use of mobile telecommunications throughout Vanuatu, and in rural areas in particular, since the market has opened up
- mobile is the preferred mode of telephony in both rural and urban areas
- the 'digital divide' between rural and urban Vanuatu has reduced.

In terms of patterns of phone use:

- rural users are more likely to share mobile phones with other household members whereas urban ones more likely to own
- Digicel is the preferred service provider in rural areas and TVL in urban areas
- rural users tend to use mobiles primarily for making calls while urban users are more experienced and use mobiles for making calls, SMS, and receiving calls
- on average, rural users spend more on public telephony than their urban counterparts, whereas urban respondents spend more on mobile telephony than rural respondents
- a higher percentage of rural users spend more on mobile telephony than they do on public telephony
- rural and urban users alike use mobile telephony more than private and public fixed line telephones for emergencies, communicating with family and friends, and business purposes
- the majority of those who do not own a mobile phone intend to acquire one in the next year
- the primary reason for current non-use is the high cost of using telephony including costs of charging, call costs and the opportunity cost of finding network coverage.

Section C

Provides evidence of the relationship between telecommunications and livelihoods. The key findings include:

- a positive relationship between perceived access to telecommunications and perceived livelihood change
- positive impact of telecommunications on livelihoods for social and financial capital, in particular rural and urban users reported increase in access to telecommunications is leading to increasing contact with family and friends, improving information regarding family events, reducing cost of travel, and increasing speed of communication
- both rural and urban users view telecommunications as critical for economic activity and would find it difficult to continue if they could no longer had access.

Section D

Assesses the means and preferences of information and communication prior to, and as a consequence of, telecommunication liberalisation. The major findings are:

- the preferred medium of information and communication flow is telephone, followed by face-to-face communication, referral to local leaders, village information centre, radio, and newspapers (while there are considerable differences across rural and urban areas, telephone is the preferred means of communicating in both areas)
- telephone is valued most in communicating for social information, emergencies, and education, but has not been able to supplant face-to-face communication in business activity
- widespread access to telephony has reduced the use of letters and tele-radio in general and in rural areas in particular, but has made little difference on referral to local leaders, face-to-face communication, and use of newspapers.

A. Description of respondents and households

This section summarises the demographic description of interviewees, household characteristics, and levels of household prosperity. The data collected serves as premise on which the latter two sub-sections on access to telecommunications and impact of telecommunications on livelihoods will be assessed.

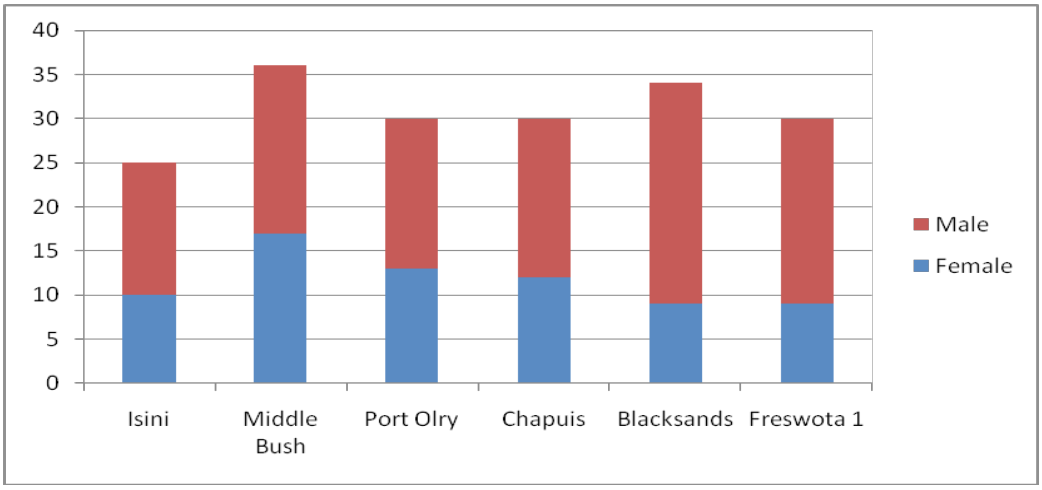
A1. Demographic description of interviewees

The field survey was conducted with a total of 185 adult respondents, aged 18 years and above, in rural and urban areas of Vanuatu. There was an equal distribution of respondents in rural and urban areas.

62 per cent of the respondents were male whereas 38 per cent were female. The survey was designed to capture equal number of men and women respondents, targeting adult members of households, irrespective of gender. Equal number of male and female interviewers was approached, however, the research team found that the imbalance in gender of respondents was because men were more willing to participate and more forthcoming in their response than women were.

Surprisingly, rural women were more willing to participate than urban women. 57 per cent of the female respondents were in rural areas compared to 43 per cent in urban areas. Figure 5.1 shows the gender and geographical distribution of the respondents. (Note: Isini, Middle Bush and Port Olry were the rural sample areas while Chapuis 1, Blacksands, and Freswota 1 were the urban ones). The case study on gender and telecommunications (Chapter 7) further discusses the results of the survey along gender lines.

Figure 5.1: Gender and geographical distribution of respondents



There was an imbalance in gender of respondents because men were more willing to participate and more forthcoming in their responses than women were.

Respondents were generally aged between 25 and 35 years, and most had secondary education.

As is demonstrated in Figure 5.2, the average age of respondents was 35 years (32 years for males and 36 years for females). The average age of respondents in rural areas was 37 years, compared to 32 years in urban areas.

Figure 5.2: Average age of respondents

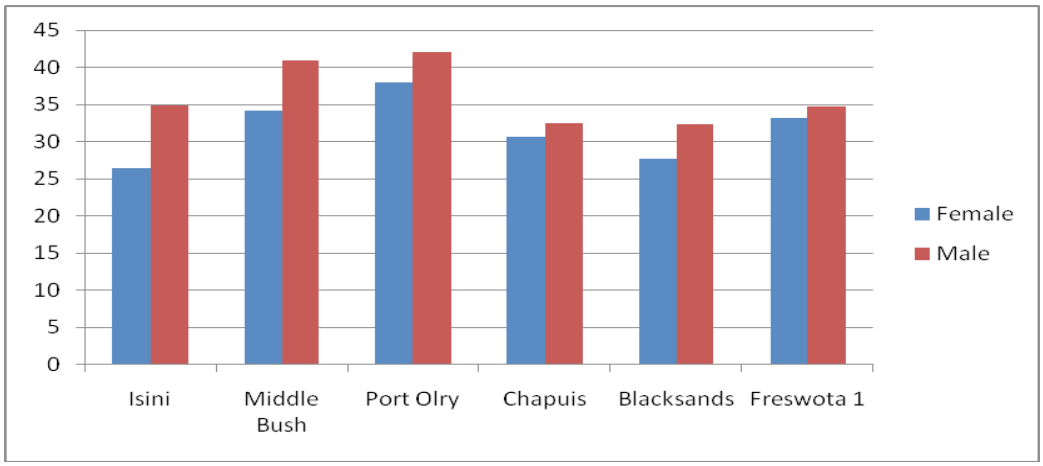
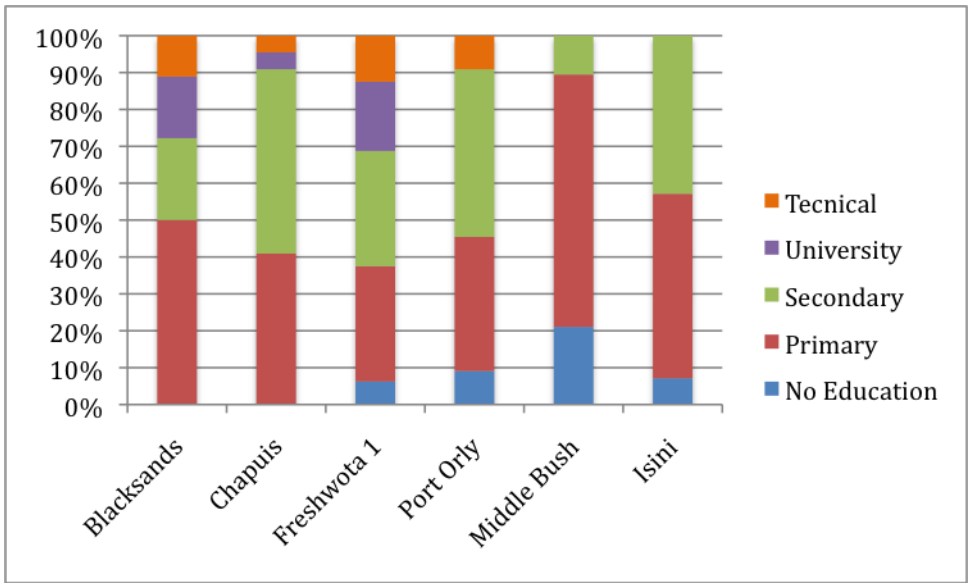


Figure 5.3 illustrates the average levels of education of respondents. The percentage of respondents with 'no education' and 'primary education' was comparable between rural and urban areas. As expected, there were a higher percentage of urban respondents in secondary, university and technical education. 'Technical' refers to vocation and technical training centres.

Figure 5.3: Average levels of education

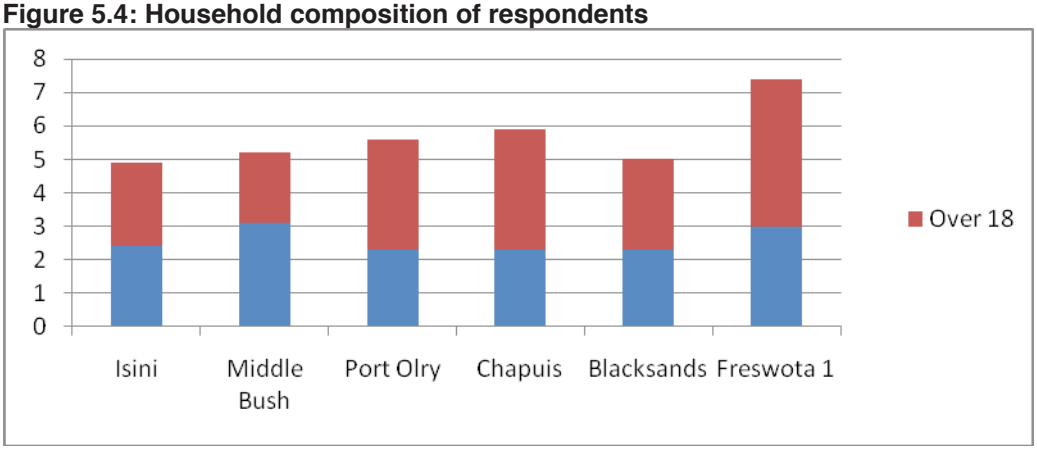


A2. Household characteristics

The mean household size of was 5.7 with a mean of 3.1 adults and 2.6 under the age of 18.

The mean household size of was 5.7 with a mean of 3.1 adults and 2.6 under the age of 18. The mean size of households in rural areas (5.2) was lower than in urban areas (6.1). The number of individuals over the age of 18 in urban households was higher (3.6) in comparison to rural households (2.6). This can be explained, in part, by the higher number of household members migrating to urban areas for education, in search for work, or following marriage. Figure 5.4 provides a graphical description of household composition by sampled locations.

Figure 5.4: Household composition of respondents



There were more net contributors to the household than net dependents as depicted in the Table 5.1 and Figure 5.5. This is broadly consistent with the age profile of the household members, the higher number of adult members in both rural and urban sample areas. It suggests that majority of the adult members of households were contributing cash income, most likely of varying amounts, to the household.

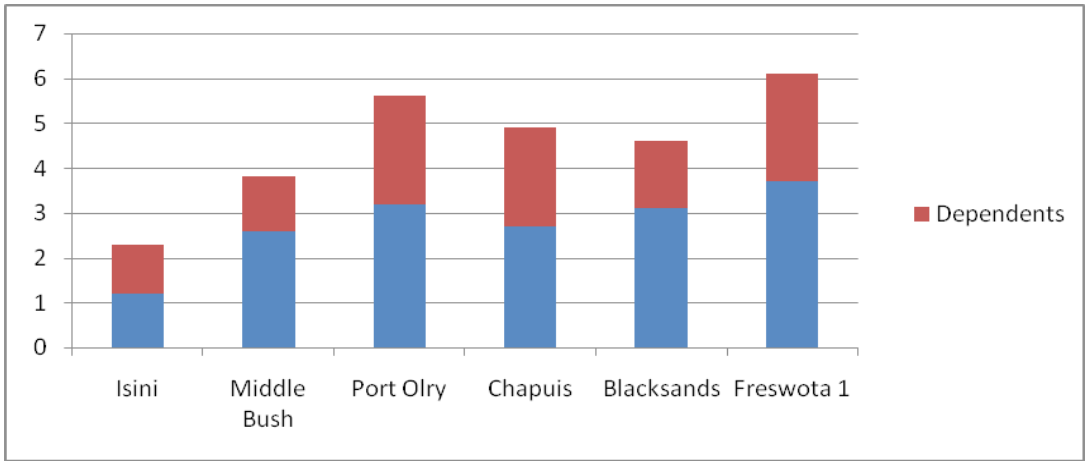
Nevertheless, the research team found that it was difficult to determine the size of the household, net contributors and dependents. Households were highly variable over time and space. In other words, respondents often understood households as parents and children. But it was common for relatives and friends to stay in urban households, for instance, over long periods of time and contribute to the household. Respondents frequently included other family members, aside from those stated in the total number of household members, when it came to questions such as 'how many members of your household are currently living outside of the household and contributed to the household'. This helps to explain why the composition of the household did not always match with the number of contributors and dependents.

Table 5.1: Contributions and dependents in the household

	Contributors	Dependents
Isini	*1.2*	*1.1*
Middle Bush	*2.6*	*1.2*
Port Olry	*3.2*	*2.4*
Rural	**2.3**	**1.6**
Chapuis	*2.7*	*2.2*
Blacksands	*3.1*	*1.5*
Freswota 1	*3.7*	*2.4*
Urban	**3.2**	**2**
Total	**2.8**	**1.8**

Migration, both within Vanuatu and overseas, was an integral part of life for respondents.

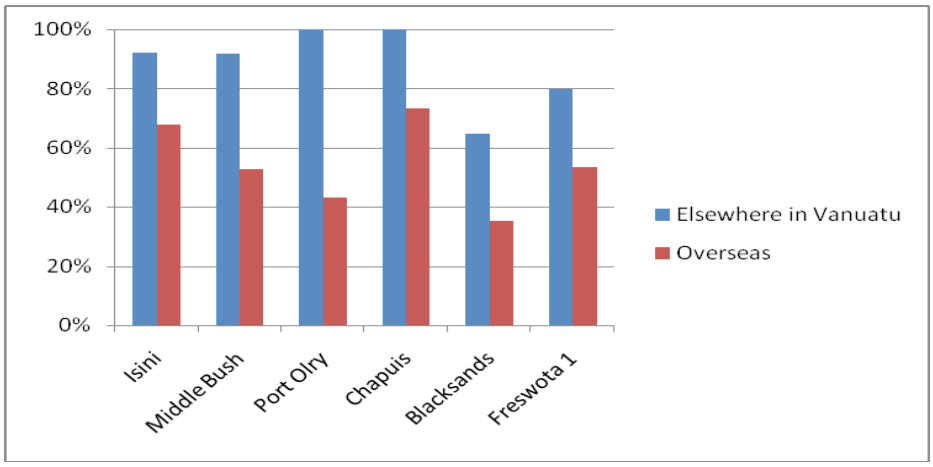
Figure 5.5: Contributors and dependents in the household



In addition, it was found migration, both within Vanuatu and overseas, was an integral part of life for respondents. As the Figure 5.6 demonstrates, vast majority of households had family members living outside the household. 88 per cent of respondents reported they had household members living in other parts of Vanuatu and 54 per cent said they had members living overseas.

Furthermore, 95 per cent respondents in rural areas said that they had household members living elsewhere in Vanuatu (most likely in urban areas) and 54 per cent said overseas. In urban areas, 81 per cent had household members living in other parts of Vanuatu (most likely in rural areas) and 53 per cent said overseas.

Figure 5.6: Migration within and outside of Vanuatu



Such high levels of geographical mobility were likely to result in demand for telecommunications and can explain the proliferation of mobile phone use since the market opened up in June, 2008. This will be discussed in greater detail in the Case study on the role of telecommunications in rural and urban linkages (refer to Chapter 8).

A3. Rural and urban household prosperity

A number of indicators, both direct and indirect, have been used to establish levels of prosperity of households. Direct indicators were declared 'cash' income whereas indirect ones were access to, and ownership of, assets and access to services.

The declared mean monthly 'cash' income for all sampled areas was 35,000 Vatu per month. There were considerable differences in the mean declared income between rural and urban areas. The mean declared income was 26,000 Vatu per month for rural areas compared to 44,000 Vatu per month in urban areas. There were also significant differences in the mean income within rural areas. Respondents in growing and diversified rural economies such as Port Olry (57,000 Vatu per month) reported significantly higher sources of income than more isolated and agriculture-dependent rural areas such as Middle Bush (7,000 Vatu per month) and low-income urban settlements such as Blacksands (31,000 Vatu per month).

While declared income serves as a good measure of relative household prosperity, there are a number of caveats. The research team found interviewees were often reluctant and/or unable to respond to income questions. For instance, in the rural researched areas, many interviewees pointed income from the sale of agricultural produces fluctuated significantly making it difficult to accurately respond to monthly income related questions.

Given the above limitations, it was essential to complement declared income with other measures of household prosperity. The majority of respondents, and particularly those in rural areas, reported economic transactions with family members living elsewhere in Vanuatu and/or overseas as an important aspect of household livelihood. But it was difficult to quantify the inflow of cash income from outside of the household. Urban households typically received food from rural areas whereas rural ones received cash and other consumer items.

Nevertheless, interviewees were asked to what extent their household was financially dependent on household members living outside of the household (elsewhere in Vanuatu and overseas). Respondents were given four choices – not at all, a little, quite a lot, and a lot.

30 per cent of those in rural areas responded 'quite a lot' whereas only 14 per cent responded the same in urban areas. As demonstrated in Figure 5.7 below, it was found rural areas were more dependent on economic transactions from family members than urban ones. This can be explained by other research into the economy of Vanuatu[1] that suggest rural areas are primarily subsistence, agriculture based with food available in abundance but dearth of opportunities for income generation[2].

The case study on rural and urban linkages (Chapter 8) provides further discussion on these points.

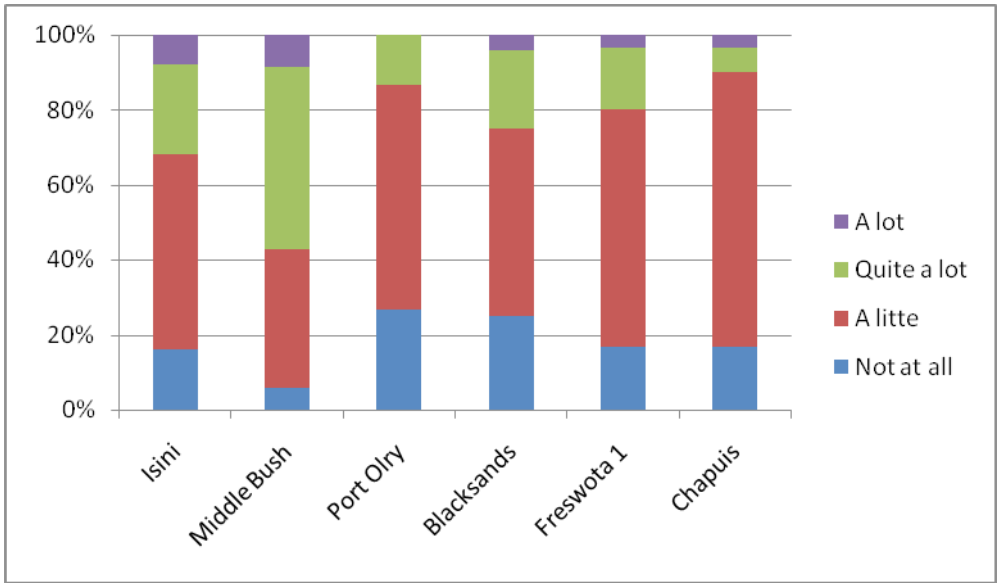
Rural areas are primarily subsistence, agriculture based with food available in abundance but lack opportunities for income generation.

1. Government of Vanuatu National Accounts 2007, Agricultural Census 2006 and Household Income and Expenditure Survey 2007

2. See: AusAID (2008) The Unfinished Drivers of Change in Vanuatu, Canberra: Australian Agency for International Development.
and
Basnett, Y. (2008) "Trade, Poverty and Human Development" in Vanuatu Diagnostic Trade Integration Study, edited by D. Gaye, Port Vila, Vanuatu: Department of Trade, Industry and Investment.

Households, in general, had access to water and telephone but limited access to computer and fridge.

Figure 5.7: Migration and extent of economic dependence



Household possessions and access to household services are useful indicators of both relative household prosperity and the relative value attached to different product and services (DFID 2006, pp.146). As the table below demonstrates, households, in general, had access to water and telephone but limited access to computer and fridge.

There were marked differences in availability of services – water, electricity, telephone, television, fridge, radio and computer – across rural and urban areas. For instance, only 47 per cent of the rural respondents had access to electricity compared to 85 per cent in urban areas.

Table 5.2: Household Services and Consumer Goods

	Water	Electricity	Telephone	Television	Fridge	Radio	Computer
Rural	84%	47%	68 %	14 %	1 %	30 %	4 %
Urban	84 %	85 %	85 %	74 %	44 %	71 %	21 %
Total	84 %	66 %	77 %	45 %	23 %	51 %	13 %

A4. Employment and Sources of income

The Sustainable Livelihoods Framework[3] suggests that many households in developing countries have diversified sources of income. In light of this, interviewees were asked to identify three main sources of income for their households. It was found those who responded more than one source of income were primarily in urban areas than in rural ones. The responses are presented into two categories – those who reported they and/or their household members worked for others and those who reported self-employed. In assessing the following data, it should be remembered these relate to household level employment and sources of income and may not necessarily reflect the occupation of the interviewees.

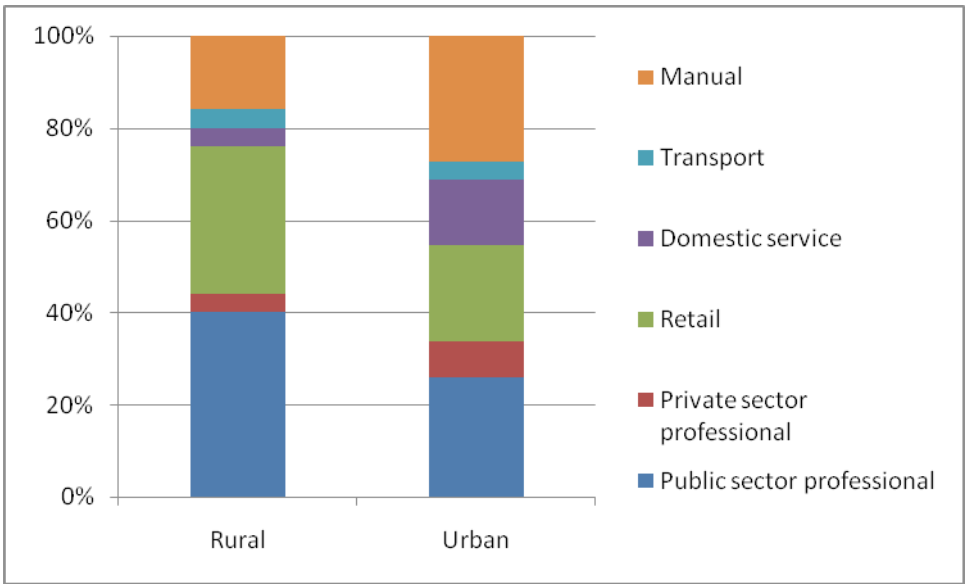
3. Bebbington, A. (1999) Capitals and Capabilities: A Framework for Analyzing Peasant Viability, Rural Livelihoods and Poverty, World Development, Vol.27, No.12, pp.2021-2044.

A total of 129 respondents reported they and/or other household members worked as high and low skilled workers for others. High skilled workers were in public (government departments) and private sectors (banks, hotels, big businesses) while low skilled ones worked in manual, transport, domestic and retail services, amongst other sectors. Manual, transport, domestic service and retail forms of employment have been included separately given the high frequency with which each of these sectors appeared in the responses.

There were a significantly higher number of individuals who worked for others in urban areas than in rural ones.

As is illustrated in Figure 5.8, amongst those who were employed by others, rural respondents were more concentrated in retail (32 per cent) and public professional sectors (40 per cent) than urban ones. Higher percentages of urban respondents were in manual (20 per cent), domestic (10 per cent), and private sector (5 per cent) than rural ones. However, in absolute terms, there were a significantly higher number of individuals who worked for others in urban areas than in rural ones. Out of the 127 respondents who reported they were employed by others, 102 (80 per cent) were in urban areas and 25 (20 per cent) in rural areas.

Figure 5.8: Frequency of respondents employed by others



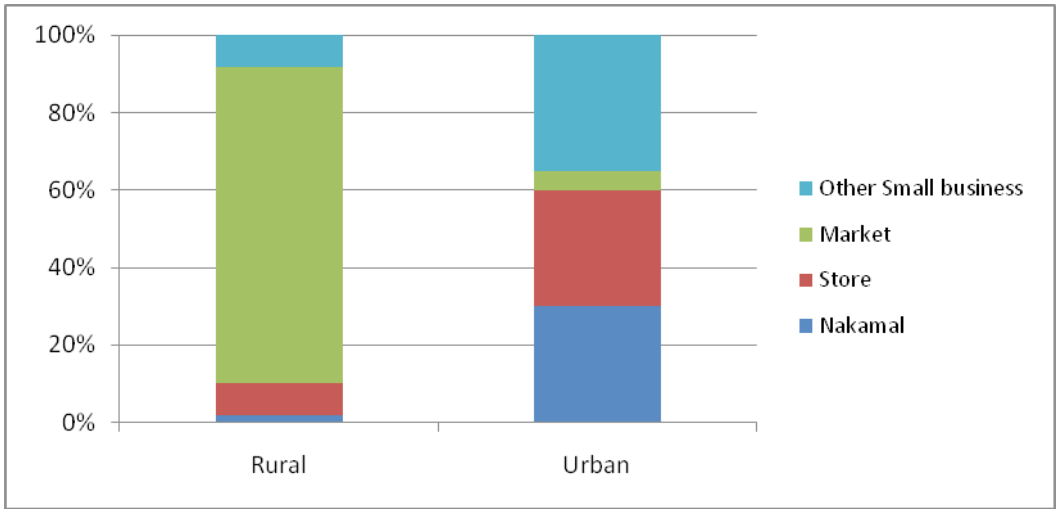
A total of 69 respondents reported they and/or other members of their household were self-employed primarily in the market (agricultural and handicraft market), store, nakamal (kava bar) and other small businesses.

There were considerable differences in response between rural and urban researched areas. As Figure 5.9 below illustrates, rural respondents were concentrated in the garden/market whereas urban dwellers were in nakamal, retail stores and other small businesses. Those employed in the garden/market were farmers and sold their agricultural products in the local markets. In comparison to those working for others, 49 out of 69 (71 per cent) of those who were self-employed were in rural areas whereas 20 out 69 (28 per cent) of respondents were in urban areas.

These findings point to considerable variations between the surveyed rural and urban areas, in that rural areas were primarily agricultural based, and urban areas more diversified.

Rural respondents generally worked in agriculture whereas urban dwellers were more likely to engage in small business such as running a kava bar, retail store or other.

Figure 5.9: Self-employed in rural and urban areas



B: Access and use of telecommunications

This section summarises the findings on access, ownership, patterns of use and non-use of telecommunications in the sampled areas. Because telecommunication was introduced only recently in the researched areas, this sub-section also serves as baseline data on the impact of telecommunication liberalisation and the subsequent entry of a second service provider on the telecommunications market.

The section demonstrates that as a result of liberalisation of the telecommunication sector:

- there has been a significant increase in access to and use of mobile telecommunications throughout Vanuatu, and in rural areas in particular
- mobile is the preferred mode of telephony in both rural and urban areas
- the 'digital divide' between rural and urban Vanuatu has reduced.

In terms of patterns of phone use:

- rural users are more likely to share mobile phones with other household members whereas urban ones more likely to own
- Digicel is the preferred service provider in rural areas and TVL in urban areas
- rural users tend to use mobiles primarily for making calls while urban users are more experienced and use mobiles for making calls, SMS, and receiving calls
- on average, rural users spend more on public telephony than their urban counterparts, whereas urban respondents spend more on mobile telephony than rural respondents
- a higher percentage of rural users spend more on mobile telephony than they do on public telephony
- rural and urban users alike use mobile telephony more than private and public fixed line telephones for emergencies, communicating with family and friends, and business purposes
- the majority of those who do not own a mobile phone intend to acquire one in the next year
- the primary reason for current non-use is the high cost of using telephony including costs of charging, call costs and the opportunity cost of finding network coverage.

B1. Mediums of access to information and communication

The addition of a second mobile service provider has greatly increased access to telephony, particularly in rural areas.

The survey included questions to compare and contrast access to, and frequency of telephone use in relation to other mediums of information and communication. Respondents were asked to indicate which forms of information and communication they had access to. As shown in Table 5.3, respondents were given the following options: radio, TV, Fax, public telephone, mobile telephone, SMS, private land line, E-mail, and computer. Access to private land line, e-mail and computer was negligible throughout the researched areas. Access to radio and TV were much higher amongst urban respondents than rural ones.

Majority of the respondents stated they had access to public telephone (77 per cent) and mobile phone (81 per cent). Access to public phone was comparable for both rural and urban respondents, whereas mobile phone was significantly higher in urban areas (95 per cent) than in rural ones (66 per cent). Nevertheless, it is interesting to note the high penetration of mobile telephony in rural areas given mobile telephony was only recently introduced in all of the rural sampled areas. As the discussion of research findings below will further establish, the addition of a second service provider has greatly increased access to telephony, particularly in rural areas.

Table 5.3: Mediums of access to information and communication

	Radio	TV	Fax	Public telephone	Mobile phone	SMS	Private land line	E-mail	Computer
Isini	*64 %*	*12 %*	*16 %*	*92 %*	*96 %*	*88 %*	*8 %*	*8 %*	*24 %*
Middle Bush	*19 %*	*3 %*	*28 %*	*97 %*	*61 %*	*50 %*	*14 %*	*17 %*	*25 %*
Port Olry	*53 %*	*47 %*	*3 %*	*43 %*	*47 %*	*27 %*	*40 %*	*3 %*	*3 %*
Rural	**43 %**	**20 %**	**16 %**	**78 %**	**66 %**	**53 %**	**21 %**	**10 %**	**18 %**
Blacksands	*97 %*	*71 %*	*26 %*	*85 %*	*91 %*	*76 %*	*35 %*	*18 %*	*21 %*
Freswota 1	*73 %*	*90 %*	*37 %*	*77 %*	*100 %*	*90 %*	*53 %*	*33 %*	*40 %*
Chapuis	*90 %*	*87 %*	*50 %*	*67 %*	*93 %*	*77 %*	*43 %*	*40 %*	*60 %*
Urban	**87 %**	**82 %**	**37 %**	**77 %**	**95 %**	**81 %**	**44 %**	**30 %**	**39 %**
Female	*57 %*	*46 %*	*24 %*	*77 %*	*73 %*	*56 %*	*30 %*	*13 %*	*20 %*
Male	*70 %*	*55 %*	*29 %*	*77 %*	*85 %*	*74 %*	*34 %*	*25 %*	*34 %*
Total	**65 %**	**51 %**	**27 %**	**77 %**	**81 %**	**67 %**	**32 %**	**20 %**	**29 %**

Respondents also indicated how frequently they used the various mediums of information and communication. Responses were recorded on a scale of 1 to 5 (1 = not used, 2 = less than once a month, 3 = more than once a month, 4 = weekly, and 5 = daily).

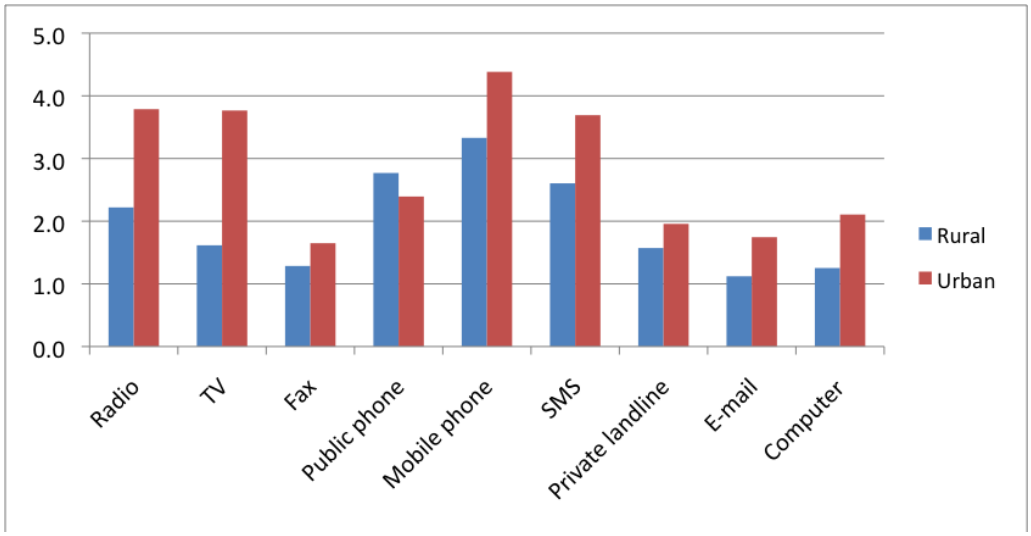
As illustrated in the Figure 5.10 below, respondents stated, on average, they used mobile phone (3.9), SMS (3.6), radio (3.0), TV (2.7) and public phone (2.6) the most frequently. The use of fax (1.5), private land line (1.8), e-mail (1.4) and computer (1.7) was minimal in comparison. Interestingly, in relation to all of the other information and communication mediums, respondents indicated they used mobile telephony the most frequently, on weekly basis on average.

When viewed from a geographical perspective, however, the use of each of these mediums of information and communication was much higher in urban researched areas than in rural ones, as is illustrated in Figure 5.10. Urban respondents used on average Radio (3.8), TV (3.8), mobile telephony (4.4), and SMS (3.7) more frequently than rural respondents did. Nevertheless, in comparison to all the other mediums of information and communication, the use of mobile telephony was the highest (3.3) even

It was mostly in Middle Bush (Tanna) where people reported limited access to mobile telephony.

in rural areas. This further demonstrates the high penetration of mobile telephony, and therefore the impact of telecommunication liberalisation on increased use of mobile telephony in rural areas in particular. It is also worth noting that the relatively low rural radio use may be explained in part to the fact that the national broadcaster's shortwave transmitter has not been operational for a number of years.

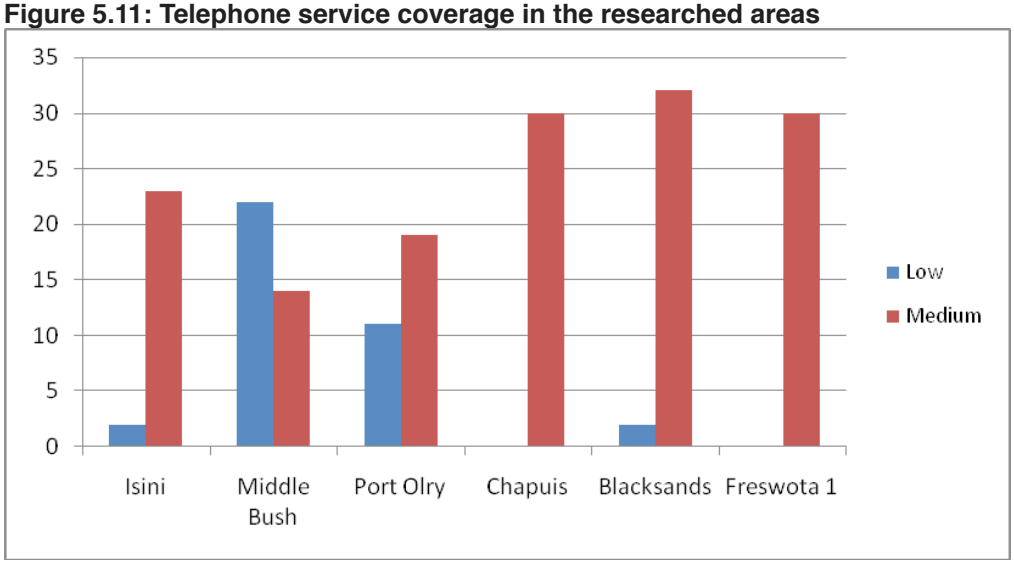
Figure 5.10: Frequency of use of information and communication mediums



B2. Access and use of telephony

The survey included questions that focused particularly on access and use of telephony. Respondents were asked to indicate the extent of their access to telecommunications, as illustrated in Figure 5.11 below. 'Low' refers to access to fixed line whereas 'medium' refers to access to fixed line and at least one mobile service provider. Out of the 185 respondents, 37 (20 per cent) stated they had 'low' access to telecommunications and 35 (94 per cent) of these were in rural areas. But, with the exception of Middle Bush, most of the rural respondents stated they had medium access to telecommunications. In other words, when analysing all of the rural respondents, it was mostly Middle Bush area with 'low' access to telephony.

Figure 5.11: Telephone service coverage in the researched areas



Type of telephony was further disaggregated to see how often people used mobile phones in comparison to public and private land lines. Responses were recorded on a scale of 1 to 4 (1=never used, 2=monthly, 3=weekly, 4=daily).

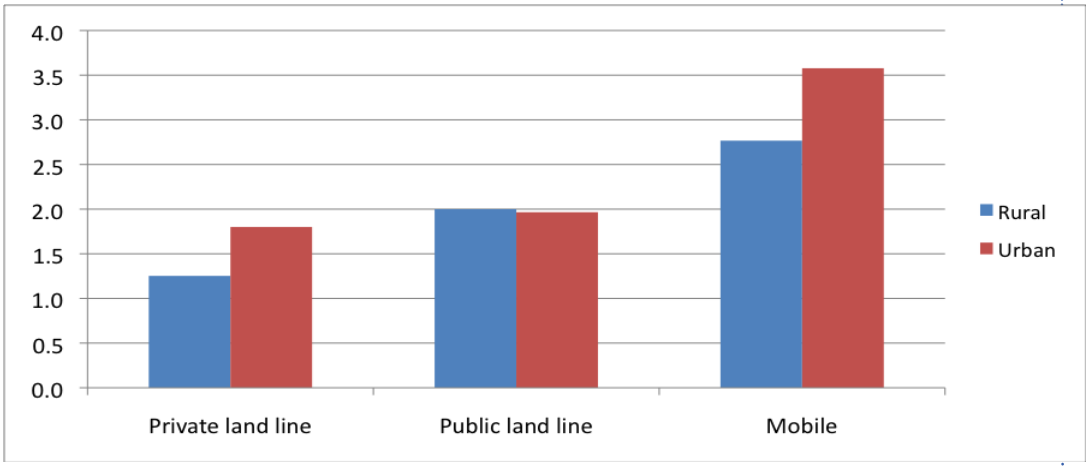
As Figure 5.12 below illustrates, on average respondents used mobile telephony (3.2 and on a weekly basis) the most frequently in comparison to public (2.0 and monthly) and private (1.5 and less than monthly) land line. The use of private land line was negligible compared to public land line and mobile telephony in all of the researched areas. There are limited number of private land-lines in rural Vanuatu, which are concentrated primarily in government offices.

On average, rural respondents used public telephony as often as urban respondents did (2.0/on a monthly basis for both rural and urban). But rural respondents used mobile telephony (2.8 in rural areas compared to 3.6 in urban) and private land line (1.3 in rural areas compared to 1.8 in urban areas) less than urban ones did. Nevertheless, rural respondents used mobile telephony (2.8/almost weekly) more in comparison to public (2.0/monthly) and private land line (1.3/rarely used).

This suggests that mobile telephony is becoming the preferred mode of access in both rural and urban areas. Furthermore, the increasing rate of mobile telephony use in rural areas also suggests that the 'digital divide' in access to telecommunications between rural and urban Vanuatu is reducing.

The increasing rate of mobile telephony use in rural areas suggests that the 'digital divide' between rural and urban Vanuatu is reducing.

Figure 5.12: Frequency of use of different types of telephony



B3. Access and ownership of mobile telephony

Respondents with access to mobile telephony were asked if and how many of their household members owned mobile phone.

Out of a total of 183 individuals who responded to this question, only 23 per cent did not have a household member who owned a mobile phone.

71 per cent of mobile phone owners, stated that their household owned more than one hand set.

There were considerable differences across rural and urban areas. It was found that on average, rural respondents were likely to have one mobile per household whereas

Rural respondents were more likely to 'share' mobile telephony in the household while urban respondents had a greater propensity for individual ownership.

urban respondents owned multiple hand sets. This suggests that rural respondents were more likely to 'share' mobile telephony in the household while urban respondents had a greater propensity for individual ownership.

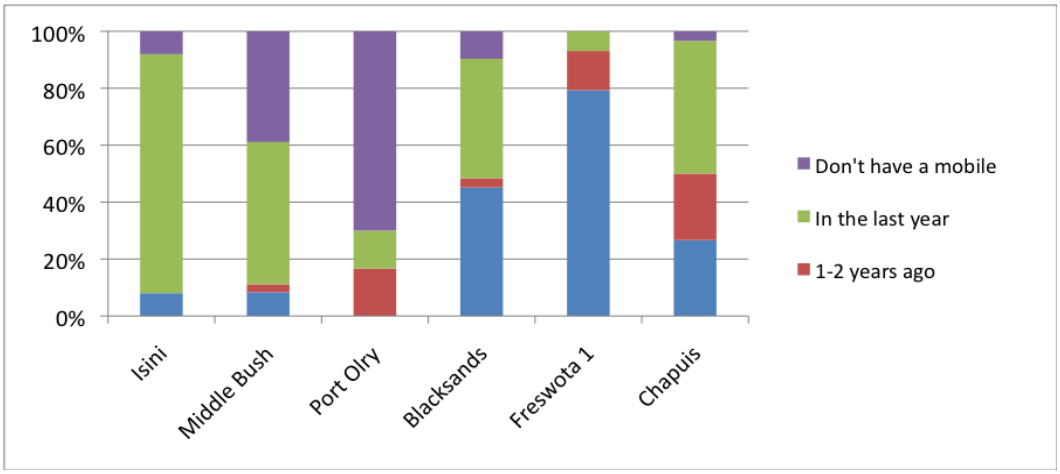
Table 5.4: Number of mobile telephones per household

	Number of Mobile Telephones per Household						
	0	1	2	3	4	5+	Average
Rural	38	23	19	4	5	2	1.1
Urban	4	17	27	17	14	13	2.7
Total	42	42	46	21	19	15	2

The survey also sought to find out when the first mobile phones were acquired in the household.

Out of a total of 141 respondents, approximately 51 per cent indicated the first mobile in the household was acquired in the last year, 13 per cent in the last 1-2 years, and 33 per cent more than 2 years ago. Majority of rural respondents with telephony in the household (80 per cent) stated they first acquired a mobile telephony in the last year. This suggests telecommunication liberalisation and the inclusion of a new service provider, have considerably increased access to and ownership of mobile telephony in the rural researched areas.

Figure 5.13: Household acquisition of mobile telephony



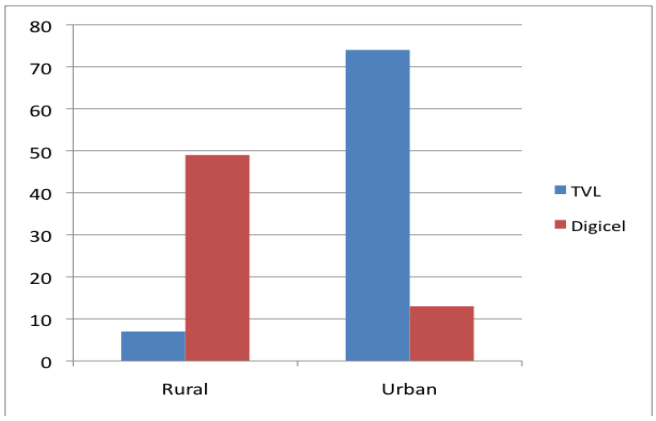
To further corroborate this, respondents indicated which service provider they used. As Table 5.5 and corresponding Figure 5.14 below illustrates, 81 (57 per cent) respondents said they used TVL and 62 (43 per cent) said Digicel. The majority of the urban respondents (85 per cent) said they used TVL whereas, most rural respondents (88 per cent) used Digicel.

Moreover, field researchers found the 12 per cent rural respondents who said they used TVL were referring primarily to public phones that remain serviced by TVL.

Table 5.5: Mobile telephony service provider

	TVL	Digicel
Isini	5	18
Middle Bush	2	19
Port Olry	0	12
Rural	7	49
Blacksands	22	6
Freswota 1	27	3
Chapuis	25	4
Urban	74	13
Total	81	62

Figure 5.14: Mobile telephony service provider



The majority of the urban respondents used TVL whereas, most rural respondents used Digicel.

A caveat of this question is that it does not include those who were using both TVL and Digicel. Many urban respondents who took part in semi-structured interviews and focus group discussions conducted as part of this study said they had both TVL and Digicel SIM cards. It was stated that Digicel was better at keeping in touch with relatives in rural areas whereas the TVL service was seen to have improved dramatically since the arrival of competition. Rural respondents, in comparison, said they preferred Digicel because it was providing network coverage for the first time in rural areas.

B4. Patterns of Use of Various Types of Telephony

Along with levels of access to telecommunications, it is equally pertinent to understand how people use telecommunications and for what purposes. The survey included questions to elicit patterns of telephony use such as the nature of mobile telephony use, expenditure on telephony, and the purposes of use. The evidence collected on expenditure on and patterns of telephony use also serve to compare and contrast across the three different types of telephony – public, private, and mobile.

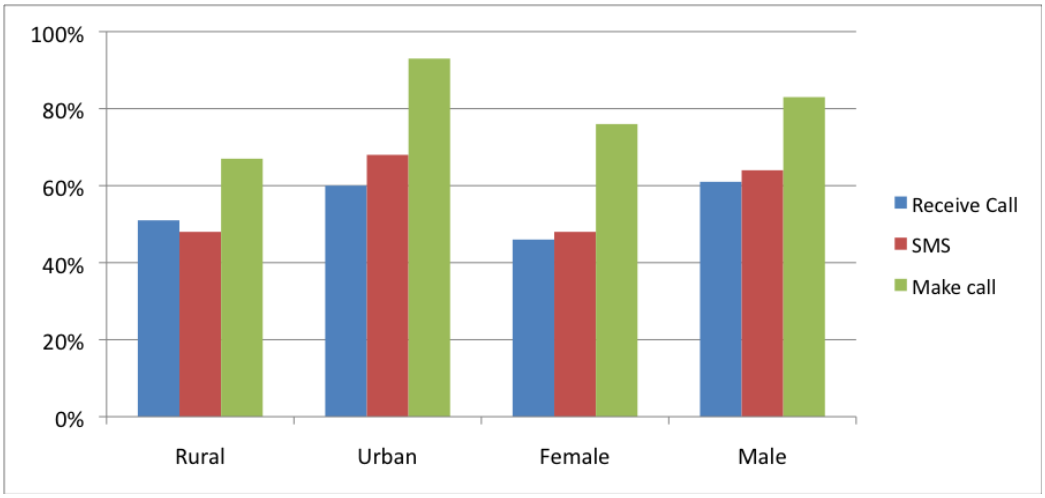
Focusing exclusively on mobile telephony use, respondents were asked to indicate how they used mobile phones - to make a call, SMS, and/or receive calls. The majority of the respondents (80 per cent) said they used mobile telephones to make calls, 58 per cent for SMS, and 55 per cent for receiving calls.

The level of sophistication in the use of mobile phones is likely to increase with more experience.

There were some differences across rural and urban areas. Urban respondents tended to use phones for all three purposes while rural ones tended to use phones mostly (68 per cent) for making calls. Use of SMS was lower in rural areas (48 per cent) in comparison to urban areas (68 per cent). This can be explained in terms of lower literacy rates in rural relative to urban areas, and the fact that access to mobile telephony was a new phenomenon in rural areas at the time of the survey.

The level of sophistication in the use of mobile phones is likely to increase with increase in experience with mobile phone use.

Figure 5.15: Use of mobile telephony



Broadening the scope of enquiry to telephony in general, respondents were asked to indicate their expenditure on and use of different types of telephony – public land line, private land line, and mobile. The data collected serves to compare and contrast between use and expenditure on mobile telephony.

The responses reveal most respondents used public and mobile telephony much more than they used private land lines.

As is illustrated in the Figure 5.16 below, 74 per cent of the respondents did not use private telephony. Such low rates of private telephony use vis-à-vis public and mobile telephony use are broadly consistent with the data collected under 'frequency of use of different types of telephony' (refer to Figure 5.12).

On average, respondents were more likely to spend 500 Vatu per month for public telephony as opposed to 1,000 Vatu or more for mobile telephony. In other words, respondents spent more on average on mobile than other forms of telephony.

When the data is disaggregated along geographical lines, there were similar numbers of urban and rural respondents who did not use private telephony. On average, rural respondents spent more on public telephony than their urban counterparts whereas urban respondents more on mobile telephony than rural respondents did.

But interestingly, a higher percentage of rural respondents spent more on mobile telephony than they do on public telephony.

Figure 5.16: Expenditure on telephony

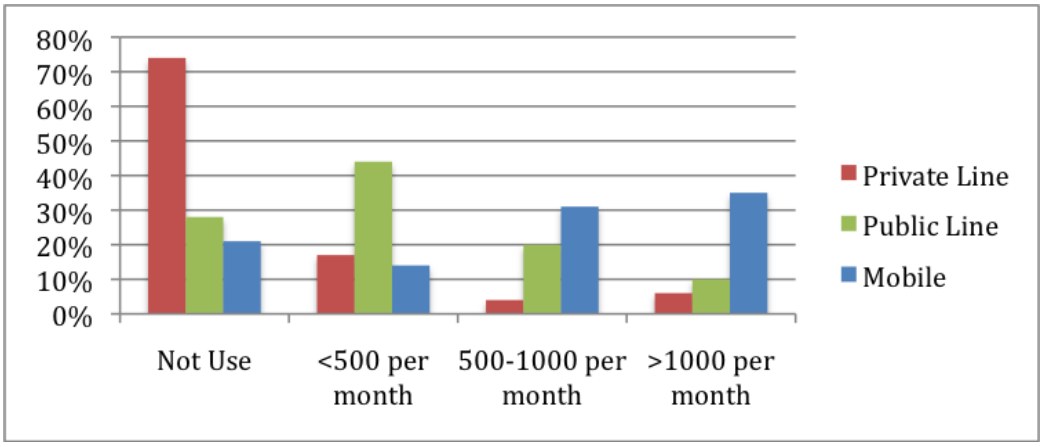


Table 5.6: Expenditure on telephony

		Not Use	<500 per month	500-1000 per month	>1000 per month
Private Line	Urban	35 %	15 %	2 %	4 %
	Rural	39 %	2 %	2 %	2 %
Public Line					
	Urban	20 %	29 %	6 %	3 %
	Rural	8 %	15 %	14 %	7 %
Mobile					
	Urban	5 %	8 %	21 %	22 %
	Rural	16 %	6 %	10 %	13 %

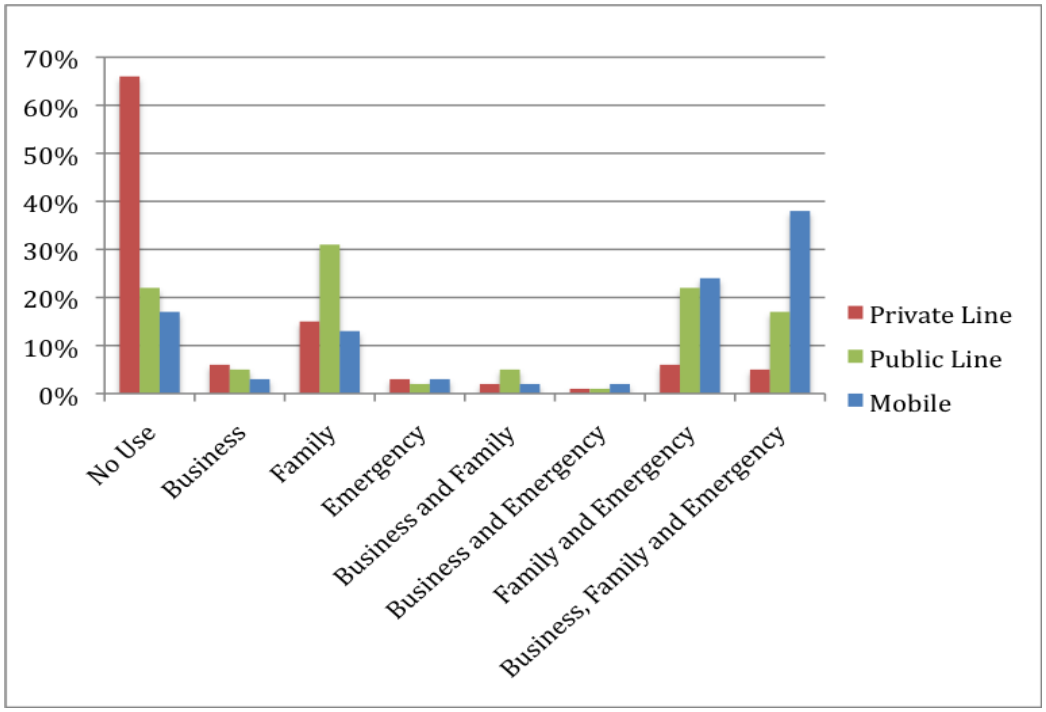
The survey also asked respondents to indicate which of the three types of telephony they used for the following purposes: business, communication with family and friends, and emergency. Responses were tabulated into 7 categories (0=no use, 1=business, 2=family, 3=emergency, 4=business and family, 5=business and emergency, 6=family and emergency, and 7=business, family and emergency).

As expected, most respondents said they did not use private telephony. The responses for public and mobile telephony were comparable (used for family and emergencies). But a higher percentage of respondents reported they used mobile telephony for all three purposes phone (business, family and emergency) than they did for public telephony. Figure 5.17 provides a graphical description of the responses. There were no significant differences in rural and urban responses.

Most respondents said they did not use a private land line.

Affordability is a key barrier to mobile telephony use.

Figure 5.17: Purpose of various types of telephony use



The limited variety of use of mobile telephony in the rural areas may also be a reflection of the fact that this is a relatively new technology and as such its full potential has yet to be exploited by rural users.

B5. Reasons for not owning and not using mobile telephony

The survey also included questions addressed to non-owners and non-users of mobile telephony. This was to seek underlying reasons for respondents not to own and/or not to use mobile telephony.

There were 43 non-owners of mobile telephony (23 per cent of the sampled size) who participated in this segment of the study. Out of these respondents, 62 per cent said they did not own mobile telephony because they did not have access to mobile telephony. These non-owners were also non-users of mobile telephony.

38 per cent said they had access to mobile telephony but did not themselves own one. 27 per cent of which said they paid per use and the remaining 11 per cent said they paid others (friends and family members) per use. During qualitative interviews, it was found non-owners of mobile telephony could borrow and use others' phones for infrequent and emergency calls. But respondents had to purchase a refill card to use others' phones for more regular and longer calls. This points to the wide prevalence of 'sharing phones'.

Respondents who were non-owners and non-users of mobile telephony were asked if they intended to acquire a mobile phone in the next year. Most expressed intention with 58 per cent stating 'probably', and 21 per cent 'definitely'. Those who responded 'definitely not' (21 per cent) either said 'they could share with others' or that mobile phones were 'too costly'. The latter suggests lack of affordability is a hindrance to telephony use.

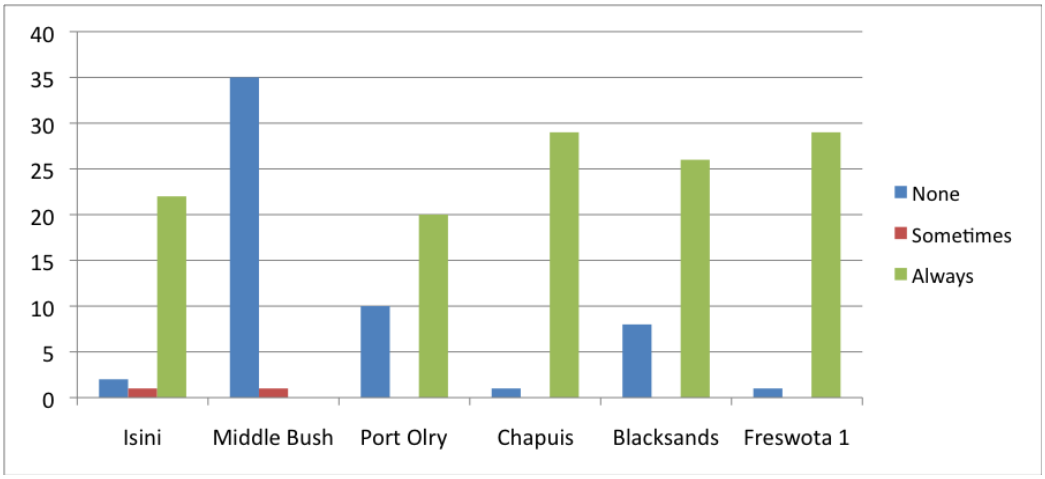
'Affordability of mobile telephony' is determined by a number of direct and indirect factors. Direct ones include cost of handset, cost of receiving calls, and cost of charging in areas with regular access to electricity. Only 47 per cent of the total rural respondents had access to electricity (refer to Figure 5.18 Below).

Respondents without electricity had devised ingenious ways of accessing mobile telephony. Many would charge their mobile for free at family member and/or friends' house with access to electricity, others would shut off mobiles at a certain time to maximise battery life and more. In Middle Bush, Tanna, a local entrepreneur had invested in a diesel generator and started a business charging mobile phones, in response to demand and the climatic conditions that limits the effective use of solar technology in this location.

Nevertheless, lack of access to electricity did pose as a significant hindrance to mobile phone use. As one of the interviewees from Middle Bush who pays 200 Vatu per mobile charge stated: "I pay as much as your monthly electricity bill just on charging my mobile".

"I pay as much as your monthly electricity bill just on charging my mobile".

Figure 5.18: Frequency of access to electricity



The indirect cost of using mobile phones includes opportunity cost of 'getting signal'. Rural respondents in both Tanna and in Santo pointed to the hours they have to walk to catch a signal in qualitative interviews.

C: Impact of Telecommunications on Livelihood

The two following sub-sections summarise evidence that the impact of improving access to communication services has had on livelihoods. The focus is on vulnerability and three key assets – financial, social, and human (knowledge). In this study, these assets have been understood as income and savings, social networking and the acquisition of information and knowledge.

Several indirect and direct questions have been included in the survey to assess the impact of telecommunications on livelihoods. The findings suggest:

- There is a positive relationship between perceived access to telecommunications and perceived livelihood change.

Increased access to telecommunications is increasing contact with family and friends, improving information flows, reducing travel costs and increasing speed of communication.

- The impact of telecommunications on livelihood is particularly positive for social and financial capital.
- In particular, rural and urban users reported increase in access to telecommunications was leading to increasing contact with family and friends, improving information regarding family events, reducing cost of travel and increasing speed of communication.
- Both rural and urban users view telecommunications as critical for their economic activity and will find it difficult to continue if they could no longer use telephony.

C1. Relationship between access to telecommunications on perceptions of livelihood context & the need to travel

Interviewees were first asked a series of questions to indicate their perceptions of overall trends in livelihood context. This refers to perceptions of social and economic environment for them and their families over the last 2 years. Each of these questions sought responses on a five-point scale which indicate the following: "-2"= situation is much worse than it had been two years previously, "0" = there has been no perceived change, and "+2" = the situation is much better. The results, as indicated on Table 5.7, show interviewees generally perceived that their social and economic life had improved in the last two years. The majority of the ten indicators are positive. Rural respondents perceived their livelihood context had improved more than their urban counterparts did.

Table 5.7: Perceptions of improvement in telecommunications & livelihoods

		Rural	Urban	Total	R
A	Health of family members	0.9	0.5	0.7	-0.10
B	Educational opportunities of children	0.8	0.4	0.6	0.09
C	Personal education	0.8	1.0	0.9	0.00
D	Security in area	0.6	0.3	0.5	0.09
E	Income	0.7	0.4	0.6	0.18
F	Support from family elsewhere	0.8	0.4	0.6	0.23
G	Relationships with family members	1.3	0.7	1	0.13
H	Relationships with friends	1.4	0.9	1.1	0.06
I	Quality of government services	0.5	-0.1	0.2	0.17
J	Access to telecommunications	1.4	1.0	1.2	1.00
	Mean of all issues	0.9	0.6	0.7	

A relationship can be observed if perceived access to telecommunications is correlated with perceptions of livelihood change. R is the correlation coefficient between attitudes

to each area of change and access to telecommunications, r(X,Y) = cov(X,Y)/σxσy. Overall, perception of improved access to telecommunications correlates with perception of overall livelihood context. This is particularly so with regards to social networking and social capital. There is some positive correlation between changing attitudes to "support from family elsewhere" (or social capital) and "access to telecommunications". At the same time, correlation does not mean causality. These results simply imply that those who perceived improved access to telecommunications also perceived other improvements in their livelihoods.

A much cited outcome of increased access to telephony is a reduction in travelling time.

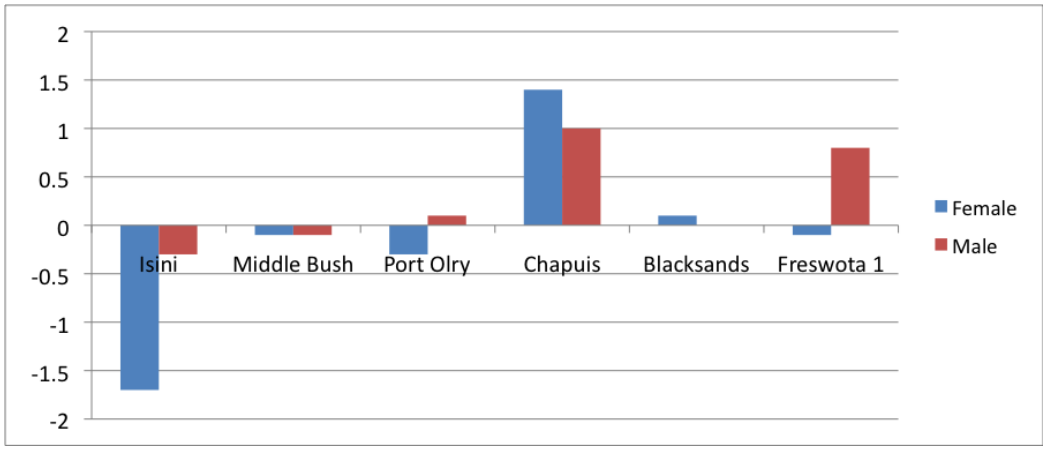
A much cited outcome of increased access to telephony is a reduction in travelling time. Interviews were asked about their perceptions of travelling time in the last two years. Results have been tabulated on a scale of -2 to +2 (need to travel has decreased, no change, need to travel has increased).

Overall respondents felt that there has been little change in their need to travel in the last two years. However, rural respondents perceived their need to travel had gone down more than urban respondents felt.

Table 5.8: Perceptions of need to travel for health, social and financial reasons

	Female	Male	Total
Isini	*-1.7*	*-0.3*	*-0.9*
Middle Bush	*-0.1*	*-0.1*	*-0.1*
Port Olry	*-0.3*	*0.1*	*0*
Rural	**-0.7**	**-0.1**	**-0.3**
Chapuis	*1.4*	*1*	*1.2*
Blacksands	*0.1*	*0*	*0.1*
Freswota 1	*-0.1*	*0.8*	*0.5*
Urban	**0.5**	**0.6**	**0.6**
Total	**-0.1**	**0.3**	**0.1**

Figure 5.19: Perceptions of need to travel for health, social and financial reasons



The data presented above are concerned with broad attitudes towards the social and economic context in which respondents live, and offer only limited indirect evidence

The impact of telephony was relatively high on social and financial capital.

concerning impact of telephony on livelihoods. Much more valuable evidence was derived when respondents were asked to directly evaluate the value of telephony to them and their households.

C2. Perceptions of impact of telephony on livelihoods

Respondents were asked a detailed series of questions allowing them to evaluate the impact of telephony on them and their households' livelihoods. Interviews indicated response on a scale of 1 to 4 (1= not applicable, 2= No influence, 3 = Influence, 4= Large Influence).

The data is categorised into different livelihood indicators and is presented in Table 5.9 and corresponding Figure 5.20 below.

The responses ranged between not applicable to little influence (1.1 to 2.5). In other words, on average, respondents did not think that telephony was making a significant impact on their livelihoods. Such results could be due to a number of the following factors, including:

- For rural and urban respondents alike, access to widespread and affordable access to telephony at the time of the survey was a recent development. While respondents were able to identify how their access to information and communication had been impacted by telephony, as will be discussed subsequently, they found it more difficult to evaluate the impact of mobile telephony on other aspects of their livelihood.

- The use of telephony throughout the researched areas remained limited to certain purposes (i.e. ones that have yielded more significant results such as improved information regarding family events).

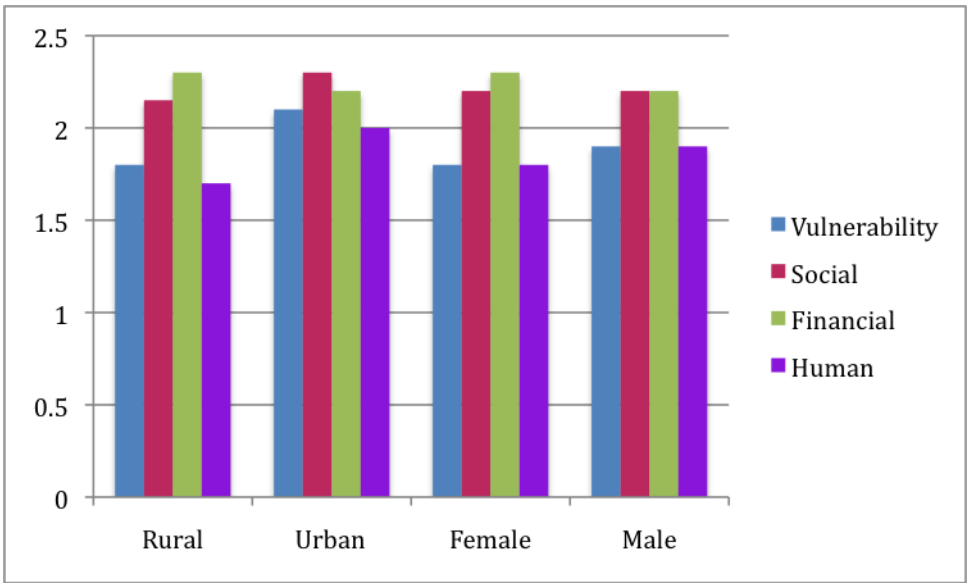
- Furthermore, most respondents, in qualitative interviews, expected telephony to have a large impact on certain key indicators such as 'help in time of emergency'. For instance, interviewees in rural areas thought mobile telephony could be used to call for an ambulance if a family member were to fall ill; find information from doctors about basic precautions to take before the ambulance arrives; and more. But this question only sought responses about experiences and not expectations of benefits.

It is important to highlight the indicators that yielded some significant results. Respondents said impact of telephony was relatively high on social and financial capital. In particular, respondents thought telephony was aiding in increasing contact with family, improving information regarding family events, reducing cost of travel, increasing speed of communication, and surprisingly, improving access to family health. There were little significant differences between rural and urban respondents.

Table 5.9: Impact of telephony on overall livelihoods

Livelihood Indicators	Rural	Urban	Female	Male
Help quickly in time of emergency	1.8	2.1	1.8	1.9
Vulnerability	**1.8**	**2.1**	**1.8**	**1.9**
Increased support from family	1.8	2.1	1.8	1.9
More frequent contact with family	2.4	2.6	2.4	2.5
Improved information regarding family events	2.5	2.5	2.6	2.5
Better coordination with other group members	1.9	2	2	1.9
Social	**2.2**	**2.3**	**2.2**	**2.2**
Saving of time Spent Travelling	2.4	2.2	2.3	2.3
Reduce cost of Travel	2.5	2.2	2.4	2.3
Ability to check on availability of goods before travel	2.2	1.9	2.2	2
Increased speed of communication	2.5	2.5	2.5	2.5
Saving of time spent on making business arrangements	1.7	2.1	1.8	2
Financial	**2.3**	**2.2**	**2.2**	**2.2**
Communication with government departments	1.3	1.8	1.3	1.7
Information about Education	2.2	2.3	2.2	2.2
Increased awareness of Legal Rights	1.1	1.7	1.4	1.4
Better Access to Family Health Information	2.3	2.4	2.4	2.3
Human	**1.7**	**2.0**	**1.8**	**1.9**

Figure 5.20: Impact of telephony on overall livelihoods



Once again precaution must be taken in interpreting these findings. To give an example, one of more significant results as indicated on the table above is 'reduction in travelling costs'. In the sub-section A, it was indicated that rural respondents are earning approximately 26,000 Vatu per month while urban respondents approximately 44,000 Vatu. In the sub-section B, it was established that a high percentage of rural and urban telephony users are spending 1000 Vatu or more on mobile and public telephony. But based on these evidence alone, it is difficult to determine: *whether* expenditure on

Mobile phone users are spending 1,000 Vatu or more per month, but it is difficult to determine whether this is new expenditure or is substituting for other costs (e.g. transport).

Most respondents believe that it would be difficult to carry out their economic activity without access to telephony.

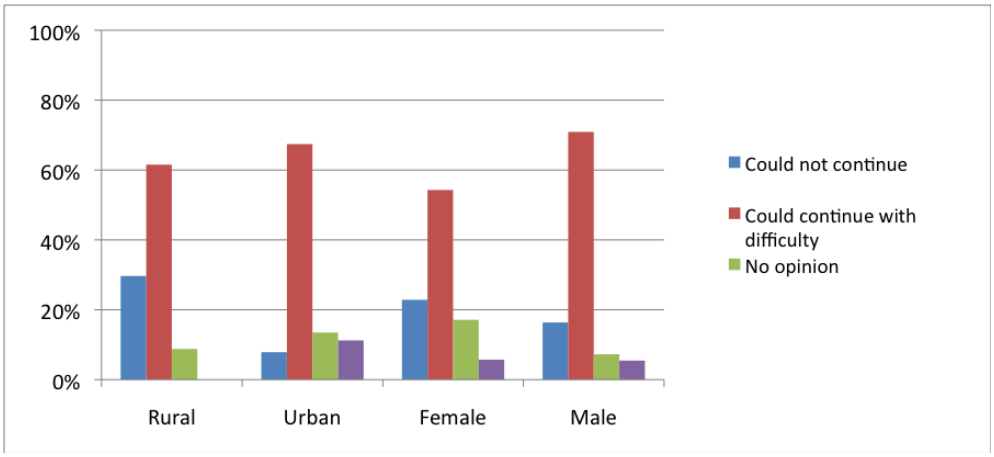
telephone costs are expenditure which substitutes for other expenditure (e.g. travelling costs) and thereby reduce overall household expenditure *or* additional expenditure which would not occur if telephones were not available and thereby increase household expenditure. Along with questions to elicit implications on overall livelihoods, interviewees were also asked how damaging they perceived it would be to their economic activity if they could no longer use telephone. Responses were indicated on a scale of 1 to 4 (1=will not continue, 2=could continue with difficulty, 3=no opinion, and 4=no difference). This was to allow respondents to define their own understanding of 'economic' benefits instead of using pre-defined ones, as done on the question above.

The findings are illustrated on Table 5.10 and Figure 5.21 below. Surprisingly, this question yielded more significant results than the one on the impact of Telephony on overall livelihoods. The majority of respondents (64 per cent) of respondents perceived they would be able to continue but with difficulty. There was little difference in response in rural and urban surveyed areas. 62 per cent of rural respondents said they could continue but with difficulty as compared to 67 per cent for urban respondents. Interestingly, there were more rural interviewees (30 per cent) who reported they 'could not continue' as compared to 8 per cent for urban areas. This evidence lends further support to the importance of telephony throughout Vanuatu and in rural areas in particular.

Table 5.10: Impact of telephony on economic activity

	Could not continue	Could continue with difficulty	No opinion	No difference
Isini	*16 %*	*84 %*	*0 %*	*0 %*
Middle Bush	*25 %*	*72 %*	*3 %*	*0 %*
Port Olry	*47 %*	*30 %*	*23 %*	*0 %*
Rural	**30 %**	**62 %**	**9 %**	**0 %**
Blacksands	*3 %*	*59 %*	*7 %*	*31 %*
Freswota 1	*17 %*	*47 %*	*33 %*	*3 %*
Chapuis	*3 %*	*97 %*	*0 %*	*0 %*
Urban	**8 %**	**67 %**	**13 %**	**11 %**
Female	*23 %*	*54 %*	*17 %*	*6 %*
Male	*16 %*	*71 %*	*7 %*	*5 %*
Total	**19 %**	**64 %**	**11 %**	**6 %**

Figure 5.21: Impact of telephony on economic activity



D: Impact of telecommunications on communication means and preferences

An understanding of established information and communication flows is essential to understand the impact of new technology.

The study assessed the impact of telecommunications on information and communication flows. ICTs, including telephony, enable individuals and communities to interact more or less effectively with one another. Any new technology that is introduced enters into an established pattern of information and communication flows. While it may adopt or disrupt these flows, its impact will be closely related to them. An understanding of the established information and communication flows is therefore critical to assessing the impact and implications of new ICTs as they are deployed (DFID 2005, pp. 162). The survey includes questions to establish priority information needs and channels used to meet them, and the impact telephony is having on existing forms of information needs and channels.

The data demonstrates:

- Telephone followed by face-to-face communication, referral to local leader, village information centre, radio, and newspapers are the most preferred medium of information and communication flow throughout Vanuatu. While there are considerable differences across rural and urban areas, telephone is the preferred means of communicating in both areas.
- Telephone is valued most in communicating for social information, emergencies, and education, but has not been able to supplant face-to-face communication in business activity. Radio is used most widely for news and weather updates.
- Widespread access to telephone has reduced the use of letters and telephone radio in general and in rural areas in particular, but has made little difference on referral to local leaders, face-to-face communication, and use of newspapers.

D1. Communication means and preferences

Interviews were asked which of the following types of information and communication flows did they prefer: face to face, local leader, radio, TV, newspaper, adverts, village information centre, telephone, internet and SMS. Respondents were asked to indicate their response from a scale of 0 to 4 (0=not applicable, 1=not important, 2=no opinion, 3=important, 4=very important).

As Table 5.12 below demonstrates, interestingly, responses were between a scale of not applicable to important (1.4 to 3.4). In general, respondents thought internet was 'not applicable', and indicated 'no opinion' for adverts, TV, and SMS. Telephone, face-to-face, local leaders followed by village information centre, radio, and newspaper were considered 'important'. Telephone was perceived as the most important form of information and communication flows.

Table 5.12: Information and communication flows

	Face to face	Local leader	Radio	TV	News-papers	Adverts	Village info centre	Telephone	Internet	SMS	Letters
Rural	**3.2**	**2.9**	**2.3**	**1.5**	**2.1**	**1.5**	**2.9**	**3.4**	**0.9**	**2.1**	**1.8**
Urban	**3.0**	**3.2**	**3.1**	**2.9**	**3.1**	**2.5**	**2.6**	**3.5**	**2.0**	**2.6**	**2.6**
Female	3.1	2.9	2.5	2.0	2.5	1.7	2.8	3.4	1.2	2.1	2.1
Male	3.1	3.1	2.9	2.3	2.6	2.1	2.8	3.5	1.6	2.5	2.3
Total	**3.1**	**3.1**	**2.7**	**2.2**	**2.6**	**2.0**	**2.8**	**3.4**	**1.4**	**2.3**	**2.2**

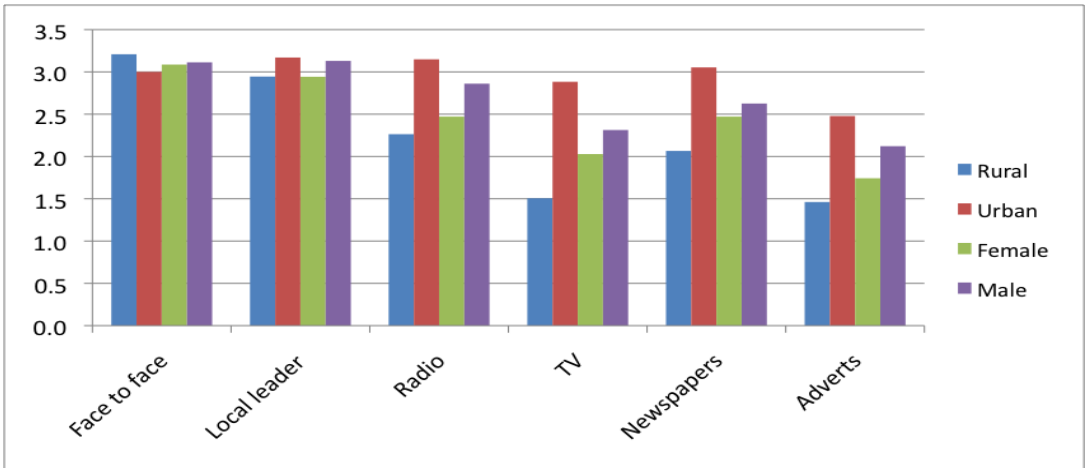
Both urban and rural respondents equally perceived that telephony was the most important form of information and communication.

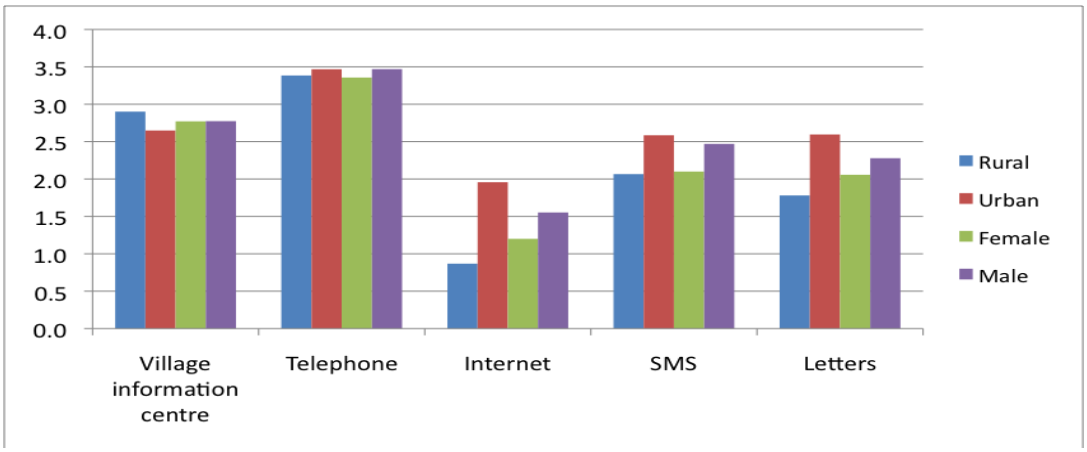
There were a number of differences between rural and urban respondents. Rural respondents thought TV, Adverts, newspapers, and letters were not applicable or not important whereas urban ones thought they were important. This could be explained with regards to lack of electricity, education, and means of accessing these consumer goods in rural areas as opposed to urban ones.

Surprisingly, as shown in the table above, urban respondents thought 'local leaders' were more important as a source of information and communication than rural respondents did. In qualitative interviews, for instance, many respondents said respect for, and authority of, chiefs and local leaders was stronger in rural communities than in urban ones. But aside of these differences, both urban and rural respondents equally perceived that telephony was the most important form of information and communication.

The data is also presented graphically as shown in Figure 5.22 below.

Figure 5.22: Preferred information & communication channels





The high importance urban and rural respondents placed on 'telephone' over other means of communication does not suggest that these other forms of information and communication are being replaced by telephone. For instance, as will be discussed in the case study on small and medium enterprises (Chapter 6), all of the entrepreneurs interviewed for the case study said telephony is a complement to, and not a substitute for, face-to-face communication. Face-to-face communication is essential for building and maintaining trust. Also, the informal nature of business activity in much of Vanuatu means much rests on established patterns of behaviours, which cannot be easily

supplanted by new forms of information and communication technologies.

Respondents in the household survey were also asked to indicate the most commonly used means of accessing the following types of information and communication: business and agriculture, social information, emergency, governmental services, education, weather, and news.

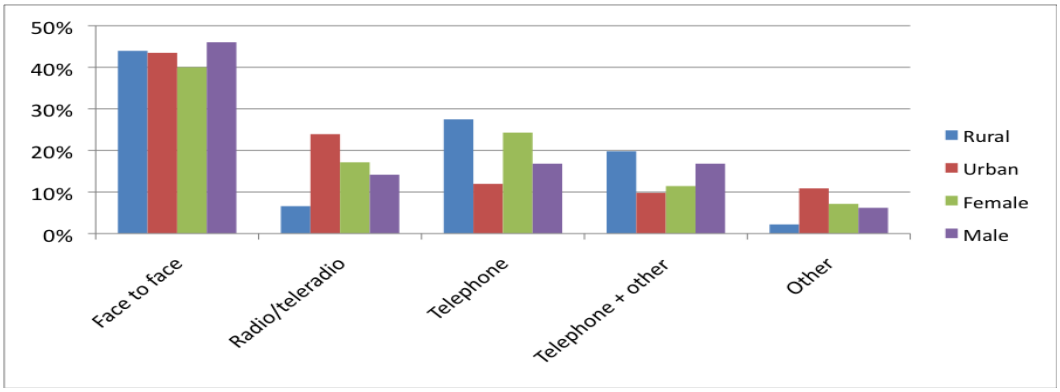
Once again, sources of information and communication were: 1=face-to-face, 2=local leader, 3=radio, 4=TV, 5=newspaper, 6=Adverts, 7=village information centre, 8=telephone, 9=internet, 10=SMS, 11=letter, and 12=telephone + other form of communication. Option 12 was added after the survey was first trialled.

The field researchers found that many respondents wanted to include telephone and other forms of communication. Providing option 12 was important in assessing the frequency with which respondents used telephone alone or in combination with other mediums of information and communication.

The results are depicted in the following series of tables and corresponding graphs in Figure 5.23 (A)-(H) below.

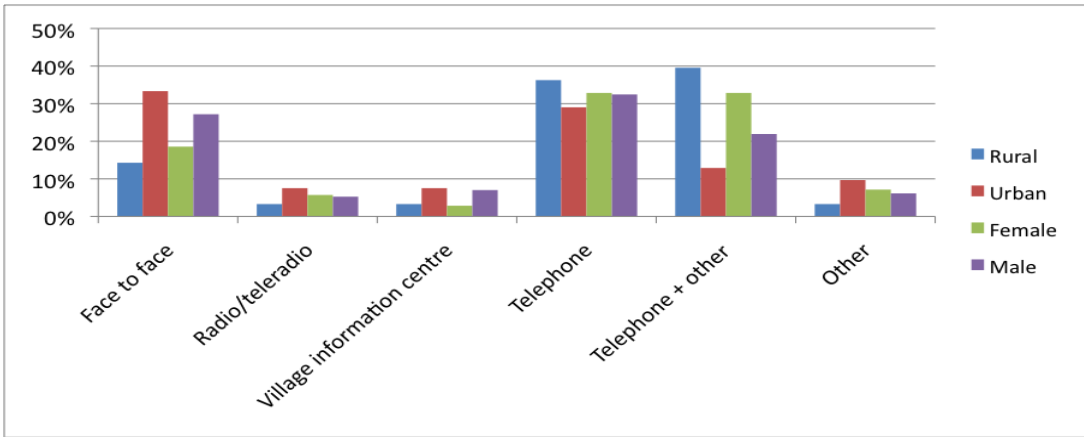
Figure 5.23 (A)-(H): Most commonly used means of accessing different types of information and communication

5.23 (A) Business and farming information	Rural	Urban	Female	Male	Total
Face to face	44 %	43 %	40 %	46 %	44 %
Radio/tele-radio	7 %	24 %	17 %	14 %	15 %
Telephone	27 %	12 %	24 %	17 %	20 %
Telephone + other	20 %	10 %	11 %	17 %	15 %
Other	2 %	11 %	7 %	6 %	7 %

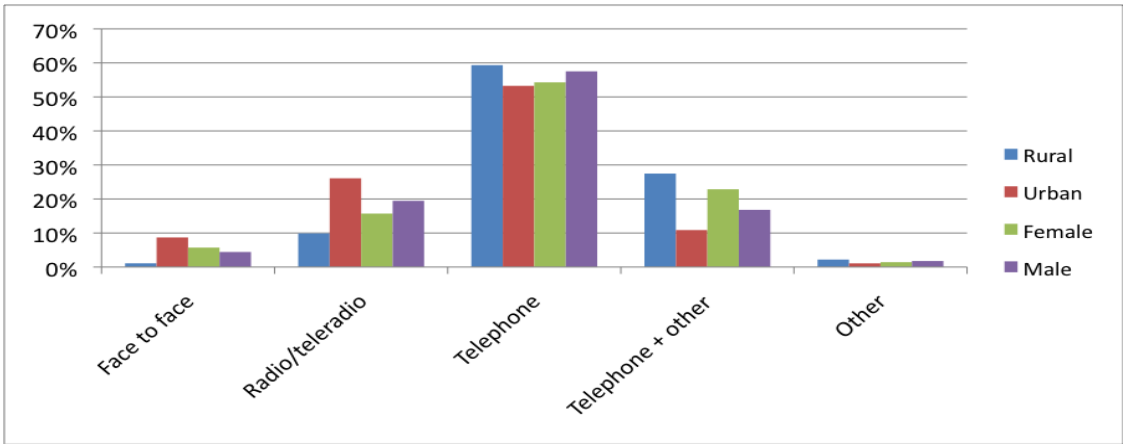


The telephone does not replace other means of communication - e.g. entrepreneurs stated telephony is a complement to, and not a substitute for, face-to-face communication.

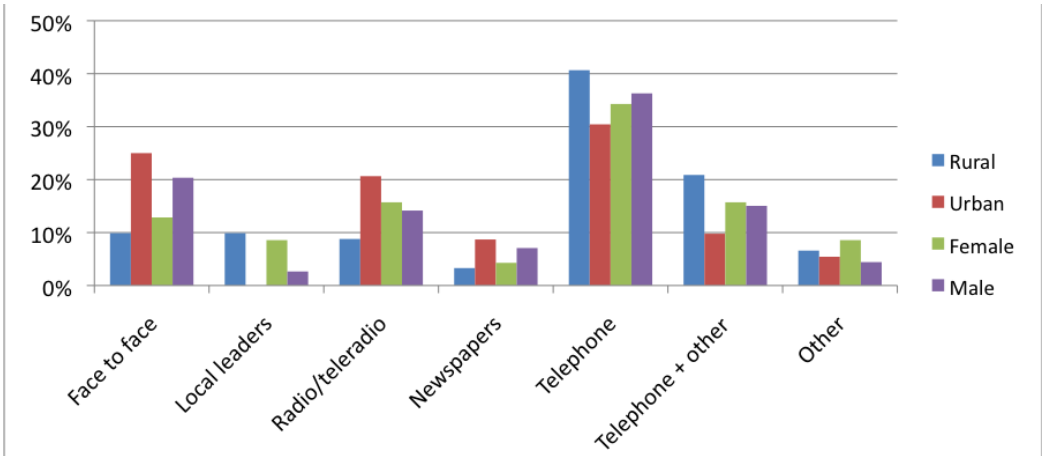
5.23 (B) Social information	Rural	Urban	Female	Male	Total
Face to face	14 %	33 %	19 %	27 %	24 %
Radio/tele-radio	3 %	8 %	6 %	5 %	5 %
Village information centre	3 %	8 %	3 %	7 %	5 %
Telephone	36 %	29 %	33 %	32 %	33 %
Telephone + other	40 %	13 %	33 %	22 %	26 %
Other	3 %	10 %	7 %	6 %	7 %



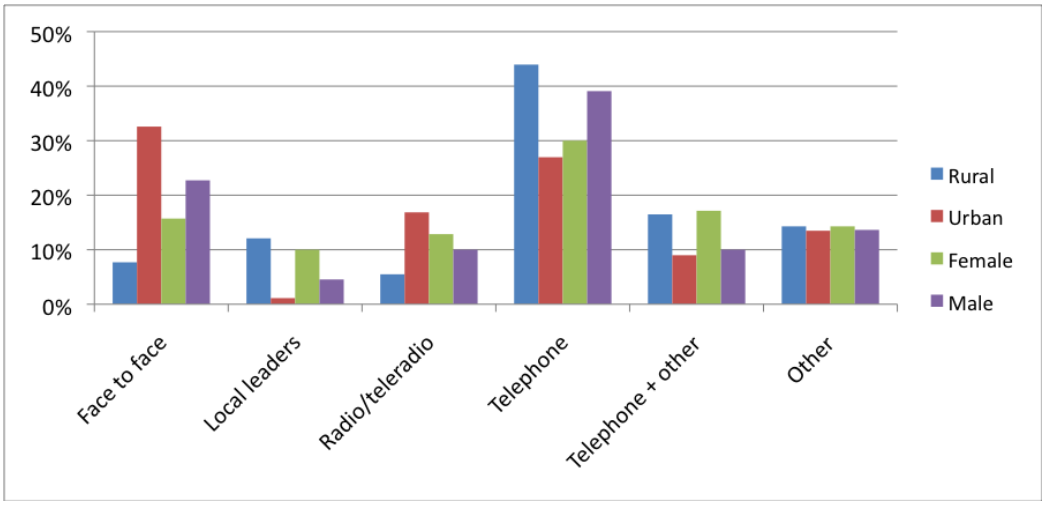
5.23 (C) Emergencies	Rural	Urban	Female	Male	Total
Face to face	1 %	9 %	6 %	4 %	5 %
Radio/tele-radio	10 %	26 %	16 %	19 %	18 %
Telephone	59 %	53 %	54 %	58 %	56 %
Telephone + other	27 %	11 %	23 %	17 %	19 %
Other	2 %	1 %	1 %	2 %	2 %



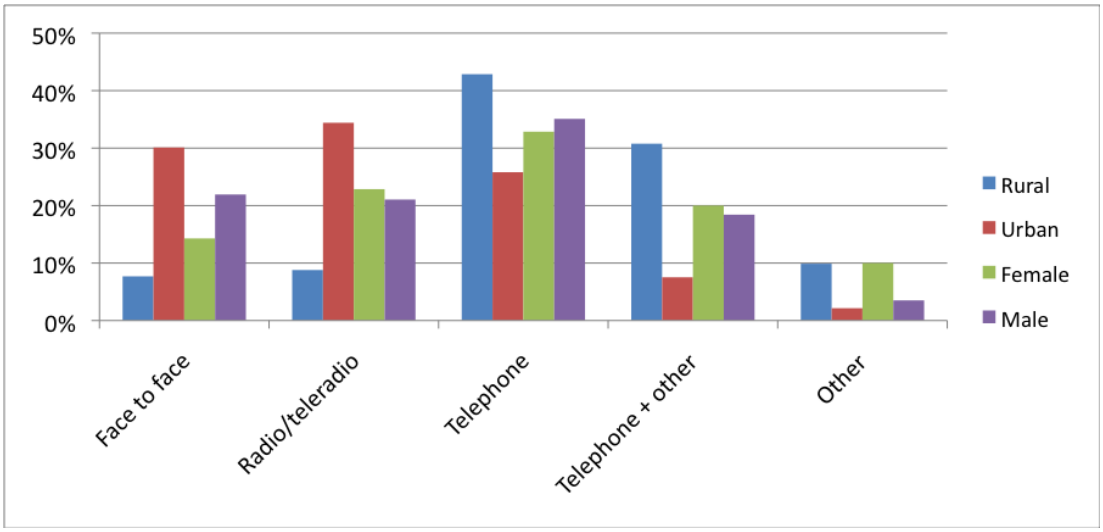
5.23 (D) Government services	Rural	Urban	Female	Male	Total
Face to face	10 %	25 %	13 %	20 %	17 %
Local leaders	10 %	0 %	9 %	3 %	5 %
Radio/tele-radio	9 %	21 %	16 %	14 %	15 %
Newspapers	3 %	9 %	4 %	7 %	6 %
Telephone	41 %	30 %	34 %	36 %	36 %
Telephone + other	21 %	10 %	16 %	15 %	15 %
Other	7 %	5 %	9 %	4 %	6 %



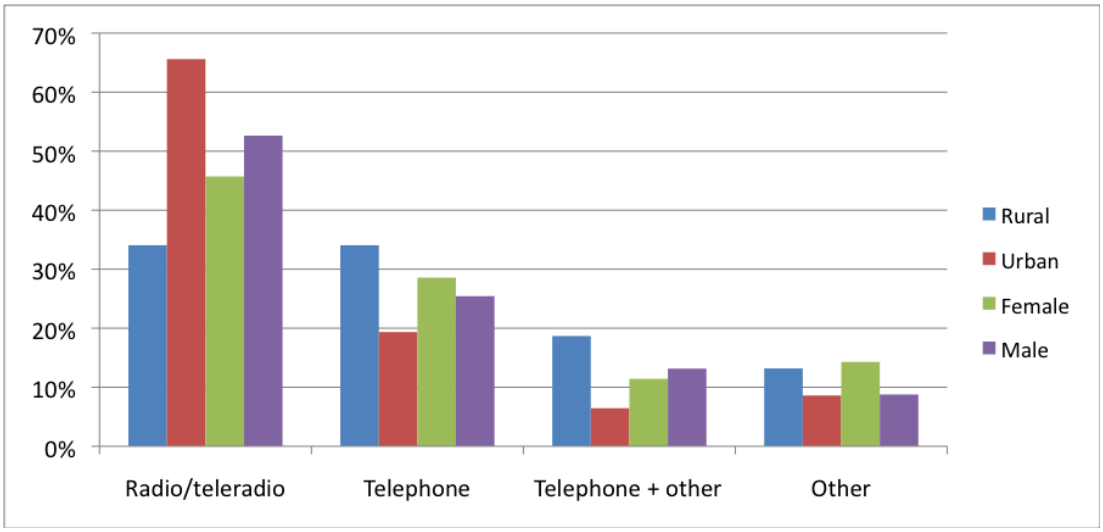
5.23 (E) Civil society organisations	Rural	Urban	Female	Male	Total
Face to face	8 %	33 %	16 %	23 %	20 %
Local leaders	12 %	1 %	10 %	5 %	7 %
Radio/tele-radio	5 %	17 %	13 %	10 %	11 %
Telephone	44 %	27 %	30 %	39 %	36 %
Telephone + other	16 %	9 %	17 %	10 %	13 %
Other	14 %	13 %	14 %	14 %	14 %



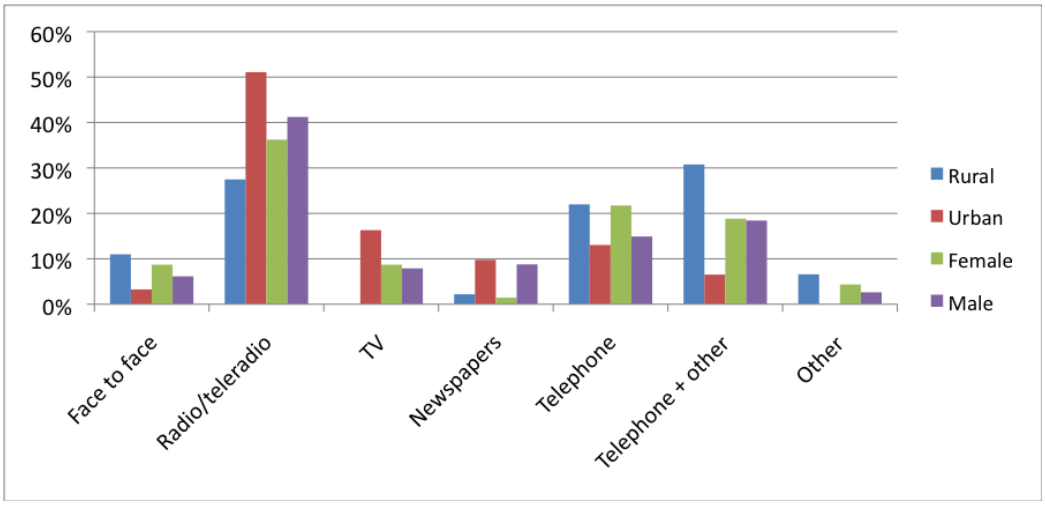
5.23 (F) Education	Rural	Urban	Female	Male	Total
Face to face	8 %	30 %	14 %	22 %	19 %
Radio/tele-radio	9 %	34 %	23 %	21 %	22 %
Telephone	43 %	26 %	33 %	35 %	34 %
Telephone + other	31 %	8 %	20 %	18 %	19 %
Other	10 %	2 %	10 %	4 %	6 %



5.23 (G) Weather	Rural	Urban	Female	Male	Total
Radio/tele-radio	34 %	66 %	46 %	53 %	50 %
Telephone	34 %	19 %	29 %	25 %	27 %
Telephone + other	19 %	6 %	11 %	13 %	13 %
Other	13 %	9 %	14 %	9 %	11 %



5.23 (H) News	Rural	Urban	Female	Male	Total
Face to face	11 %	3 %	9 %	6 %	7 %
Radio/tele-radio	27 %	51 %	36 %	41 %	39 %
TV	0 %	16 %	9 %	8 %	8 %
Newspapers	2 %	10 %	1 %	9 %	6 %
Telephone	22 %	13 %	22 %	15 %	17 %
Telephone + other	31 %	7 %	19 %	18 %	19 %
Other	7 %	0 %	4 %	3 %	3 %



In general, respondents ranked 'telephone' as the most frequently used means in communicating for social information, emergencies, government services, civil society and education. Radio was used more often for accessing news and updates on weather. It must be noted that most respondents, rural ones in particular, could not recall communicating for government services and civil society-related purposes. This could be because most government services and national level civil society organizations are housed in urban centres with limited reach to rural areas.

Nevertheless, these results imply telephone is valued most for high priority and social/ family information, but it has not supplanted face-to-face communication for business activity. The latter lends further support to the qualitative research finding that face-to-face communication is considered more important for business information and communication. Furthermore, because widespread access to telephone (mobile) remains a recent phenomenon, it still has not been tapped for disseminating news and weather related information.

There were both similarities and differences across rural and urban responses. For instance, both rural (44 per cent) and urban (43 per cent) respondents equally employed 'face-to-face' in communicating for farming and business information. For social information, urban respondents relied on 'face-to-face' first and telephone second while rural respondents employed telephone on its own and telephone and other means of communicating. In qualitative interviews, for instance, most rural respondents pointed out that telephone was the primary way of communicating with friends and family who were living outside the village.

Rural (59 per cent) and urban (53 per cent) used telephone in communicating for

Most rural respondents pointed out that telephone was the primary way of communicating with friends and family who were living outside the village.

The impact of telephones on education includes finding schools in urban areas, checking on children going to school away from the household and tracking school fees.

emergency purposes. Interestingly, even in fairly accessible outer islands like Tanna and Santo, a negligible number (10 per cent) of rural respondents said they used radio for finding information and communicating in time of emergencies, compared to the 26 per cent of urban respondents that did.

Rural respondents made more use of telephone (43 per cent as compared to 26 per cent for urban) for 'education' purposes. The rural interviewees in particular pointed to the positive impact telephone was having on 'education' in qualitative interviews. They emphasised how phones had helped in finding schools for their children in urban areas, checking on children going to school away from the household and tracking school fees.

The results thus far suggest telephony has been integrated into existing forms of information and communication flow. Interviewees were also directly asked how access to telephony had affected the ways in which they communicated and shared information.

Interviewees were asked to indicate if the frequency with which they consulted the following sources of information and communication had changed since they started accessing telephone: letters and postal services, face-to-face communication, use of newspapers, referral to village council and local leaders, and use of radio telephone. Responses were recorded on a scale of -2 to 2 (-2=reduced a lot, -1=reduced a little, 0=no change, 1=increased a little, and 2=increased a lot).

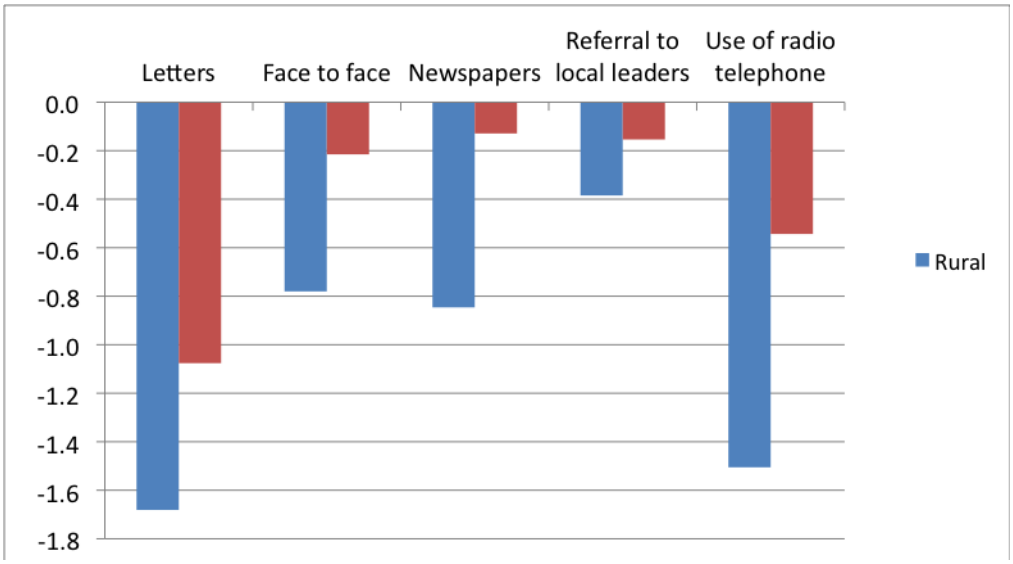
The results are depicted in the Table 5.11.

Table 5.11: Changes in information & communication patterns attributed to telephony

	Letters	Face to face	Newspapers	Referral to local leaders	Use of radio telephone
Isini	-1.8	-0.9	-1.1	-0.4	-1.6
Middle Bush	-1.6	-0.8	-1.0	-0.4	-1.4
Port Olry	-1.7	-0.7	-0.5	-0.4	-1.6
Rural	**-1.7**	**-0.8**	**-0.8**	**-0.4**	**-1.5**
Blacksands	-1.3	-0.5	-0.4	-0.3	-1.0
Freswota 1	-1.6	-0.9	-0.2	-0.4	-1.2
Chapuis	-0.4	0.7	0.3	0.3	0.5
Urban	**-1.1**	**-0.2**	**-0.1**	**-0.2**	**-0.5**
F	-1.2	-0.5	-0.7	-0.2	-0.9
M	-1.5	-0.5	-0.4	-0.3	-1.1
Total	**-1.4**	**-0.5**	**-0.5**	**-0.3**	**-1.0**

Responses ranged between 'reduced a little' to 'no difference' (-1.4 to -0.3). In general, interviewees perceived telephone had reduced use of letters and use of radio telephone. There was little difference on referral to local leaders, face to face communication, and use of newspapers.

Figure 24: Changes in information & communication pattern attributed to telephony



As expected, rural respondents felt use of letters and radio telephone had decreased more than urban ones did. For instance, in qualitative interviews, many rural interviewees said prior to widespread access to telephone, news from their family and friends living in urban areas would be passed through written messages and then re-passed orally to those who were illiterate. This highly inefficient way of passing messages is largely being replaced by widespread access to telephone.

Prior to widespread access to telephone, family news was passed through written messages and then re-passed orally to those who could not read or write.

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6. Case study: small and medium enterprises and telecommunications

The advent of competition in the telecommunication market is affecting the value chain of businesses: reducing the cost of doing business (incremental benefits) and expanding business opportunities (transformational benefits).

In this case study we consider the value chain of four enterprises in rural and urban Vanuatu and the role of telecommunications in addressing the bottlenecks faced by each enterprise.

The study demonstrates that product origin, size and location of the business are the major factors that distinguish the information needs and constraints faced by each enterprise. At the same time, businesses rely on efficient information and communication channels to assess the demand for and secure the supply of their products.

Future policies aimed at further exploiting benefits of telecommunication liberalisation for small and medium enterprises must be cognisant of issues of affordability; the role of telecommunications in existing patterns of information and communication; the importance of access to complementary infrastructure; and promote more elaborate uses of telephony.

In what follows, we first discuss the importance of focusing on telecommunications for small-medium enterprises in Vanuatu, and outline the theoretical and methodological framework employed. Next we analyse the differences in value chain across four enterprises selected for the purposes of this study, differences and similarities in information and communication needs, patterns of access and use of telecommunications, and the implications of increased access for each enterprise. The conclusion discusses the major findings and makes recommendations based on successful lessons of exploiting the benefits of telecommunications for small and medium enterprises in other developing countries.

Context for the case study

The Government of Vanuatu has prioritised the promotion of the private sector, including small agricultural and non-agricultural enterprises, as part of its national development strategy to enable sustainable growth and increase rural incomes (see Government of Vanuatu, Prioritised Action Agenda 2006-015). The Prioritised Action Agenda outlines the need to create an environment in which economic opportunities can be generated as the core part of the national development strategy. Access to the necessary infrastructure and support services, including telecommunications, is a key part of this objective.

Grindle et al. (1989) and Mead (1994) provide useful definition of ‘Small and Medium

Lessons from other developing countries suggest information and communication asymmetries are one of the prime causes of market failure and the underdevelopment of small enterprises.

Enterprises' in a developing country context. According to them, these enterprises can be categorised as 'survivalists', 'trundlers', and/or 'flyers'. *Survivalists* are enterprises run by those who have no choice but to take up the income-generating activity because they have no other source of livelihood. *Trundlers* are those where enterprise turnover is roughly static and whose entrepreneurs show no great desire or no great capacity to expand. Income provided will be enough to meet basic needs. *Flyers* are enterprises run by true entrepreneurs who have taken up enterprise because they see opportunities for growth. Income levels may meet more than basic needs.

Small and medium enterprises have a critical social and development role to play in developing countries. They are crucial for the livelihood of many men and women in developing countries. While they may have limited macro economic benefits in terms of wealth creation, growth, innovation and exports; they provide economic flexibility by turning household income into local investment that may otherwise be lost in consumption. They also help individuals gain experience and confidence to enhance business development skills (Duncombe and Heeks 2002).

Lessons from other developing countries suggest information and communication asymmetries are one of the prime causes of market failure and the underdevelopment of small agricultural and non-agricultural enterprises. Improved access to telecommunications can decrease overall business and transaction costs, open new market and distributional channels and overcome access to information about markets, prices and consumers (World Bank 2008).

The case study examines the value chain of four archetypical enterprises in Vanuatu (agricultural markets, kava, retail stores and handicrafts), maps the information and communication channels used, and assesses the extent, role, and importance of telecommunication (mobile and fixed line) for these enterprises.

Theoretical and methodological framework: value chain analysis and telecommunications

Value chain analysis explores the relationship between buyer and seller throughout the life cycle of products. Value chain analysis has been used as a development tool to promote pro-poor growth, given it can identify ways in which rural communities can be incorporated into the supply chains of goods sold for profit in the formal economy (Dolan, Humphrey and Harris-Pascal 1999).

The methodology for this case study builds on Kaplinksy's (2000) 'stages' of value chain and Schmitz's (2005) emphasis on understanding the context of value chain. Kaplisnky (2000) uses the value chain to map the sequence of activities required to make various products, including canned fruit and footwear. He argues that understanding the value chain, as well as the key areas of weakness and strength can assist businesses in improving their efficiency. He outlines design, production and marketing as the major stages of value chain. Kaplinsky's general analysis can be adapted to this specific research on the impact of telecommunications in business activities in Vanuatu. Understanding the role of telecommunications at each of Kaplinsky's stages, and the importance of telephony in the production phase, can provide a real indication as to the value of telecoms in a product value chain overall.

Recognising the dynamic nature of value chains and the broader socio-political context in which any business activity is conducted in developing countries, Schmitz (2005) argues that value chain analysis should include three main features:

- the impact of geography and distance

- the value added-aspect of each activity in the value chains
- the actors in the chain that have power over others and on what basis.

This necessitates focus on the stages of value chain outlined by Kaplinsky's model, constraints faced in communicating and acquiring supplies from rural and urban areas in each of the stages, and the identification of major actors and assessment of their relative influence in the supply process.

This case study aims to:

- Understand the value chain and the process by which goods are ordered, produced, transported, and sold to the customer
- Document channels of information and communication used by small enterprises in this value chain
- Explore the cultural context in which businesses function and the flows of information and communication in the value chain
- Identify the extent, role, and importance of telecommunications at each step of the value chain
- Identify bottlenecks and other limiting factors to efficient communication and information flow
- Understand business expectations of change in their use of telephony, particularly in the context of telecommunications liberalisation.

The case study draws on a variety of research methods - in-depth interviews of small and medium enterprises, household level survey, interviews and surveys conducted in the market in Port Vila. The household level survey includes questions on the impact of telephony on small businesses, farmers and fishermen who together constitute the majority of small and medium enterprises in Vanuatu. Surveys were conducted in the local markets of researched areas to elicit information about the type of products sold by each seller and patterns of use of telephony.

The focus of this case study is on the 13 in-depth interviews amongst those involved in the following small and medium enterprises in rural and urban Vanuatu: Kava, handicrafts, retail stores, and agricultural produces in markets. Enterprises interviewed included: 3 retail stores of varying sizes (Tanna); 2 handicraft sellers (Luganville and Port Vila); 2 kava bars (Luganville and Port Vila) and 6 mamas in the market (Luganville, Port Vila and Lenakel).

Differences in Value Chain across Enterprises

Apart from the obvious differences in the nature of goods sold, the value chain of the studied products differs considerably across the respondent enterprises. These differences in turn, have implications for the information needs, asymmetries, and transaction costs faced by each enterprise in doing business. Three major sources of differences in the value chain are related to product origin, location, and size.

There are considerable *product origin* related differences across the studied enterprises. Differences between the mamas in the market and the small enterprises serve as examples. Most of the mamas interviewed in Port Vila, Luganville and Lenakel alike said that they grew their own vegetables and sold them in the markets. The retail stores in Tanna, in comparison, sold consumer goods originating from elsewhere.

The *location* of businesses has varying impacts on the supply chain of each enterprise. For instance, the kava bar owner interviewed in Santo said she received regular supply

This case study focuses on in-depth interviews with people involved in operating kava bars, handicraft sales, retail stores, and agricultural products.

Of all business costs incurred, the highest costs were in logistics – mainly transportation to and from the market.

of kava from farmers in Santo whereas the one in Port Vila had to depend on supplies from outer islands such as Tanna. Similarly, the handicraft retailer in Luganville said majority of her products were produced in Santo whereas the VKS production in Port Vila could depend little on artists living in Port Vila.

The *size* of the business also influenced the value chain such as the number of suppliers, payments, logistics and others. For instance, the owner of a small and rural retail store interviewed in Tanna depended on supplies sold at wholesale rate in bigger stores in Tanna. Transportation was organised from Lenakel to the store, the nature of goods sold depended upon what was available in Lenakel, the sales was a small mark up from what was sold at wholesale price, and customers were often from the same village as the store. According to the owner of the shop, prices had to be kept low due to fierce competition from neighbouring retail stores.

In comparison, J.K. Naulaus, the biggest store in Tanna received supplies from a variety of stores in Port Vila at a discounted rate and had to organise for the goods to be delivered through ship and airfreight. As the largest and one of the few wholesale shops in Tanna, the store functioned as a 'price giver', and supplied to a diverse range of customers living in Lenakel and small retail stores in other parts of Tanna.

Differences and similarities in information and communication requirements

Differences in product origin, size and location means information needs and bottlenecks for efficient functioning of business vary considerably across enterprises.

Product Origin

The information required for setting prices amongst the mamas selling in all three markets was significantly lower than the retail stores in Tanna. The mamas mostly self-produced whereas retail stores dependent upon products from Port Vila. Differences in origin of product between these two enterprises had an important role to play.

The interviews with women selling at the market revealed their businesses functioned with little information required to determine what to sell, how much to sell, and what prices to charge in comparison to retail stores in Tanna. Mapping the value chain of mamas selling at the market revealed the following information was required for setting prices and determining the quantity of each of the agricultural products they sold at the market:

Costs of production + costs of logistics + customer preferences + cost of selling at the market + number of other women selling the produce in the market + prices charged by other women selling the produce in the market.

There were little variations in each of the factors outlined above, which also meant the information required for doing business was low at any point in time. The mamas produced the same products every year as long as the cost of production was manageable and there was demand for their produce in the market. Of all costs incurred, the highest costs were in logistics – mainly transportation to and from the market. But the interviewees were well versed with the cost per trip, sharing with other mamas versus coming alone. Cost of selling was a standard fee charged by the municipality and/or the committee comprising landowners in the case of the market in Lenakel, Tanna. Variations in prices primarily occurred for seasonal products. Even then, multiple women sold these products during the season. Interviewees were charging the 'going rate' for their product

in the market, that is the same as what every other mama was charging. Mamas reacted to changes to the 'going rate' by making adjustments to their prices once they arrived in the market and assessed what prices other mamas were charging.

The information needs and constraints that the retail stores in Tanna faced were considerable. The two retail shops ordering goods from Port Vila, for instance, required access to the following information to determine their unit cost of their product and ensure profitability of the enterprise:

Customer preferences for products within Tanna + stocks in the shop + availability of stocks amongst suppliers in Port Vila + price of each product + transportation (to Tanna and from the shop to other parts of Tanna) + the price of each product sold by competitors in Tanna

As reflected above, the information required for these retail/wholesale shops was much larger than the mamas in the market. Furthermore, obtaining required information was complicated by the number of products sold, the large number of suppliers used, variations in prices, and the number of shops selling similar products in Tanna. With regards to suppliers, for instance, J.K. Naulaus depended upon two sets of suppliers – those who supply specialised products (e.g. Port Vila Hardware supplies hardware), and those who supply general products (e.g. both Bon Marche and Centre Point supply eggs). Deciding what to order from the general suppliers, in particular, depended on keeping a track of prices of required products on a regular basis.

Retailers need to track of prices of required products on a regular basis.

In addition, prices of produces changed on a regular basis, largely through external factors that were beyond the control of retailers in Tanna. For instance, even the owner of the small retail store in rural Tanna was affected by changes in world price for rice and gasoline. The shop owner stated in the interview that gas and rice had been the major and most profitable products she sold for many years. But she was forced to stop selling them because prices of rice and gas had increased substantially and it was no longer profitable to continue selling them. Many of her customers were substituting rice with other food items.

The differences in product origin between mamas in the market and retail stores in Tanna therefore played a considerable role in determining the information needs and constraints each enterprise faced. Most of the mamas interviewed (5 out of 6) were selling small number of products, produced mainly by themselves (i.e. they were both producers and suppliers), and at prices and quantities that were fairly steady. They therefore did not face as many constraints as the retail stores did in managing suppliers and changes in supply costs.

Location

The *location of* suppliers also influenced the information needs and asymmetries faced. For instance, the Kava bar owner interviewed in Luganville said that she received a steady supply of good quality and well priced kava from farmers living in rural Santo. Every two weeks, two farmers would deliver the kava to her at a negotiated price of 300 Vatu/kilo. The large amount of kava production in Santo had reduced the cost of kava. Furthermore, she had many kava supply options. Her kava suppliers were reliable but should she have any problems, other suppliers were readily accessible. Kava farmers approached her on a regular basis.

In comparison, the kava bar owner interviewed in Port Vila said securing steady supply of kava was a constant problem. Because there were few suppliers in Efate, kava had to be ordered from outer island of Tanna. The supply of kava therefore depended

Individuals were more likely to use mobile telephony for communicating with friends and family, emergencies and business purposes. Lack of affordability is the major reason for non-use.

upon unpredictable and inefficient inter-island shipment. The kava bar owners had to capitalise on factors other than kava (such as food, location of nakamal or kava bar, reputation of 'Tanna' kava as distinct from kava from other islands) to attract customers on a regular basis.

Size

The information constraints faced by *small* enterprises were distinct from those faced by medium ones. To illustrate, the handicraft business interviewed in Santo was owned by a woman who was supplied by a number of artists who came to sell their produces in her shop. This meant while costs of transportation and finding information about suppliers were minimal, diversity of products she was able to sell was also low.

In comparison, VKS production, the handicraft business interviewed in Port Vila, operated out of the cultural centre. The ideology behind starting the business was to sell a wide selection of locally made handicrafts, including replicas of those on display in the cultural centre, to customers. But this required depending on many field workers who acted as part time intermediaries, negotiating the quantity and quality of products at a distance, and unpredictable shipping times.

Notwithstanding these differences in size, location, and product origin, the functioning and efficiency of each of these enterprises relied on steady flow of information and communication channels in various stages of the value chain. Kava bar owners, women selling at the market, and handicraft businesses needed to communicate with suppliers, clients, transport agencies and others on a regular basis.

Patterns of access and use of information and communication

This case study has examined the patterns of use of telecommunications and the impact of such uses on small and medium enterprises. Patterns of use of telephony included questions relating to use of various types of telephony, use of telephony vis-à-vis other mediums of information and communication, purpose of telephony use, perceptions of service provision, future expectations, and reasons for non-use.

The quantitative research findings in Chapter 5 established that since the liberalisation of the telecommunication sector and the advent of competition, there has been increasing access to, and use of, mobile telephony throughout the researched areas. Mobile telephony is becoming the preferred mode of information and communication. Respondents are substituting mobile telephony for public and private fixed line. Patronage of TVL is primarily concentrated in urban areas, whereas rural mobile phone users tend to use Digicel. Individuals were more likely to use mobile telephony for communicating with friends and family, emergencies and business purposes. Lack of affordability is the major reason for non-use.

Similarly, majority of the entrepreneurs interviewed for the case study were using mobile telephony. To illustrate, a survey of 88 individuals selling at the agricultural market in Port Vila was conducted to find the following information:

- the major product sold by each respondent
- whether or not he/she was using phone
- if using phone, which type of phone he/she was using
- if using mobile, which service provider
- if using mobile, when did he/she first acquire a mobile phone.

The survey revealed 75 per cent of women and men selling at the market were using telephony, out of which 13 per cent were using public telephony and 62 per cent were using mobile telephony. This suggests a substantial number of those selling at the market in Port Vila were using mobile telephony. Furthermore, out of those using mobile telephony, 90 per cent were using Digicel and 10 per cent TVL. The TVL mobile phones were acquired between 2006 and 2008, whereas all the Digicel phones were bought within weeks of Digicel's launch into the Port Vila market (July 2008). A similar survey conducted in the market in Luganville yielded comparable results. These research findings lend further support to the positive impact of a second service provider is having on access to and use of mobile telephony.

The majority of men and women selling goods at the market were using mobile phones purchased after the launch of a second service provider.

11 out of the 13 entrepreneurs who participated in the semi-structured interviews were using telephony for business purposes. Nine were using mobile telephony while two were using a combination of mobile and fixed line telephony. All of these interviewees said they preferred mobile telephony to private and public fixed line. Mobile telephony was more accessible, portable, reliable, and with wider network coverage.

The interviewees used telephony for various purposes depending on the nature of their businesses and associated information and communication requirements. For example, the women selling at the agricultural markets of Luganville and Port Vila were mostly using mobile telephony for arranging transportation from and to the market. In comparison, the kava bar owner in Port Vila used mobile telephony for wider purposes, which included arranging transportation, contacting middleman on a regular basis to liaise with kava farmers, replenishing kava stocks and more. Notwithstanding these differences, all of these interviewees were using mobile telephony in an effort to increase the efficiency of their respective businesses.

Interviewees who participated in the semi-structured interviews were also asked to evaluate how their use of telephony had impacted on information and communication channels used prior to their access to mobile telephony. The major information and communication they used prior to mobile telephony were the following: face-to-face, passing oral messages through others, written instructions/letters, and public and private fixed phone. Most of these communication channels had decreased significantly since the liberalisation of telecommunication sector and widespread access to telephony in Port Vila and the outer islands. This is also consistent with the quantitative research findings.

Nevertheless, all of the interviewees agreed telephony was a compliment to but not a substitute for face-to-face communication. The informal nature of business activity in Vanuatu meant much depended upon pre-existing relationships and established patterns of behaviour that could not be supplanted by new forms of technology and communication. For example, the manager of J.K. Naulaus, the biggest retail/wholesale shop in Tanna, emphasised that his business was able to thrive because of the strong networks he was able to secure over the years with the major Port Vila based suppliers. Much of his everyday business transactions relied on telephone (from ordering stocks, arranging transportation from Port Vila to supplying products to retail stores around Tanna). But he would have to make regular, personal visits to Port Vila to maintain conducive business relationships with his suppliers.

On much smaller scale, both the kava bar owner interviewed in Port Vila importing kava from the island of Tanna and one of the women importing peanuts from the island of Epi to sell at the Port Vila vegetable market depended upon family networks to liaise with farmers and ensure regular supply.

Women selling at the market in Luganville and Port Vila were earning significantly more than those in Tanna, and suggested their expenditure on telephony reduced travel and other costs.

Only two out of 13 of those who participated in the semi-structured interviews were not using telephony for business purposes. Furthermore, a survey of women selling at the market also revealed that only a few women had access to mobile telephony. Most were using public telephone for communicating with friends and family members living in other islands and not for business purposes.

These women interviewees in Tanna attributed lack of affordability as the primary reason for non-use of mobile telephony. On average, the two women reported they earned Vatu 3,000-4,500 per trip to the market. Much of this income was spent on transportation costs to and from the market and school fees for their children. Although they expected mobile telephony would be beneficial for their businesses, expenditure on mobile telephony would be an unbearable financial burden on them and their families (Refer to Box 6.1).

In comparison, the women interviewees selling at the market in Luganville and Port Vila were earning significantly more than those in Tanna, and suggested their expenditure on telephony reduced other costs (e.g. travelling costs) and increased total revenue. The women in Luganville reported an average earning of Vatu 10,000-15,000 per trip to the market while those in Port Vila earned 18,000-20,000. The transportation costs (the highest overall cost for all six women interviewees) were comparable to those paid by women in Tanna.

The comparison between women selling at market in Tanna compared to those in Luganville and Port Vila suggests the more the purchasing power individuals have, the more likely they are to have the possibility of entering the mobile telecommunications market as consumers.

Box 6.1: Lack of affordability as a deterrent to mobile use

Rosina has been coming to the market in Lenakel once per month to sell taro, kava, island cabbage and other seasonal vegetables for the last 10 years. She earns approximately 3,000-4,000 Vatu per trip to the market. Her net income is spent on school fees for her three children.

She would come to the market more often if she were able to increase the quantity of products she sold to the market and reduce transportation costs. She pays 1,000-2,000 Vatu per return trip to the market, depending on the number of other passengers in the taxi. There are no taxi drivers in her village, and she cannot pre-arrange transport. She and her husband have to wait by the road for a taxi every time she wants to come to the market. The amount she brings to sell at the market is dependent on how much she and her husband can carry. Sometimes she does not find a taxi and has to return home with all her products unsold.

She expects mobile telephony to reduce both the direct and indirect costs of doing business. She can use mobile to arrange pick up at her house. This way she will be able to come to the market more often, and bring more products to sell.

But with such a low budget, she feels that cannot afford the cost of having a mobile phone. Acquiring a mobile phone is not a constraint for her. She can request relatives living in Port Vila to send her an old mobile phone. She finds the high cost per call, and the extra burden of having to pay for charging her mobile phone the major deterrents to mobile use. There is no electricity in her village and she would have to pay a 200 Vatu fee per charge.

Impact of telecommunications on small and medium enterprises

The interviewees who participated in the semi-structured interviews were asked to evaluate the impact (or the expected impact) of mobile telephony on their businesses. The responses suggested telecommunication liberalisation and increase in access to telecommunications is having 'incremental' and 'transformational' benefits on small and medium enterprises. Incremental benefits refer to reductions in the cost of doing business and transformational benefits to expanding business opportunities.

All of the interviewees agreed mobile telephone was reducing/ expected to reduce transactions costs of doing business.

All of the interviewees agreed mobile telephone was reducing/expected to reduce transactions costs of doing business. For instance, 6 women selling agricultural produces said arranging transportation was their highest overall cost. Access to mobile telephony in particular allows them to contact drivers more easily, and reduce both the direct (travelling costs) and indirect (savings on time) costs of doing business. Similarly, the kava bar owners in urban centres depending on kava roots from outer islands stated access to telephony had improved communication with kava suppliers, intermediaries, and shipment. Access to mobile telecommunications had thereby reduced the logistical costs incurred in doing business.

Box 6.2 serves to illustrate the impact of mobile telephony on two different businesses.

Box 6.2: Incremental Benefits of Telecommunications

Valma owns one of the more successful kava bars in Luganville. Her business depends critically on the kava not running out. On average, she sells 30-50 kg of kava every day. But she finds her customers can be quite fickle and drink more than expected during holidays and pay days.

Two kava farmers from the neighbouring village of Fanafoa supply her with Kava for a negotiated price of 300 Vatu per kilo.

When she first started her business, she had to rely on pre-agreed quantity and delivery times with Kava suppliers. But with the farmers having regular access to telephony, she can order more kava any time she suspects it will run out. She finds having access to mobile has helped build the reputation of her business and maintain high customer base.

Leah comes to sell island cabbage and peanuts in the Port Vila market every Saturday. She specialises in peanuts because it is one of the more profitable products in the market, there is limited supply of peanuts in Efate, peanut sellers in the market are few, and she has been able to secure a steady supply from peanut farmers in the island of Epi.

She is originally from Epi, and pays 500 Vatu per month to a family member in the island to facilitate business between her and the peanut farmers. She has been using TVL mobile phone for the last two years, mainly to call her relative/manger in Epi and check shipment arrival at the wharf in Port Vila. But she has been experiencing more business enhancing changes with Digicel and the widespread network coverage it has introduced.

She no longer has to call a public phone in Epi and hope the message passes to her relative/ manager on time.

She can even call a ship crew and check on the location of the ship carrying her supplies and make sure her journey to the wharf is not wasted.

Since the advent of a second mobile service provider, however, VKS Production has been receiving direct calls from local artists in as remote places as Gaua to sell handicrafts.

Along with incremental benefits, interviewees also pointed to the transformational benefits of telecommunications. The example from VKS production in Box 6.3 helps illustrate this.

Box 6.3: Transformational Benefits

VKS Production is a business housed in and owned by the Vanuatu Cultural Centre. It sells locally made handicrafts and other souvenirs in Port Vila. It tries to provide a variety of products from different parts of the country. But, it has to depend upon the benevolence of field workers and volunteers who help liaise with local artists on its behalf in many different islands.

Its access to remote areas (such as the Banks and Torres groups of islands) has been restricted.

Since market liberalisation and the advent of a second mobile service provider, however, VKS Production has been receiving direct calls from local artists in as remote places as Gaua (in the Banks group of islands) to sell handicrafts - new products that have rarely been sold in Port Vila before now.

Furthermore, as part of the household level survey, respondents who reported they had their own businesses and had access to telephony (approximately 37 per cent of the total respondents) were asked to evaluate the impact of telephony use (mobile and fixed line) on a series of business related indicators shown on the table below. Responses were recorded between ranges of 0 to 3 (0=no influence, 1=not applicable, 2=influence and 3=large influence).

Table 6.1: Implications of telecommunications for small and medium enterprises

	New clients	Better prices at market	Lower costs	More sales	Help with transport
Isini	0.8	0.8	0.8	0.8	1.5
Middle Bush	0.5	0.5	0.4	0.5	1.5
Port Olry	2.0	2.1	1.7	1.7	1.4
Rural	**0.8**	**0.8**	**0.6**	**0.7**	**1.5**
Blacksands	2.5	1.8	1.8	1.8	1.4
Freswota 1	1.9	1.4	1.4	1.5	1.4
Chapuis	2.2	1.8	2.0	2.0	1.5
Urban	**2.1**	**1.6**	**1.7**	**1.7**	**1.4**
F	1.1	1.1	0.9	1.1	1.5
M	1.2	0.9	0.9	0.9	1.4
Total	**1.1**	**1.0**	**0.9**	**1.0**	**1.4**

As the table above illustrate, on average, responses ranged between 'no influence' to 'little influence' (0 to 1.4). Respondents reported use of telephony had ' little influence' on 'help with transport', but had no influence on 'new clients', 'better market prices', 'costs' and 'sales', but little influence on 'help with transport'.

There were significant differences in responses between rural and urban respondents.

Rural respondents thought telephony had helped with transport but made no influence on the other indicators. In comparison, urban interviewees thought telephony had helped in finding new clients, lowering costs, increasing sales, getting better prices, and helping with transport. Urban respondents ranked 'help with transport' the lowest of influences (1.4). This suggests urban respondents were more likely to point to the 'transformational' benefits of telephony use while rural respondents to the 'incremental' benefits.

Such differences in responses between rural and urban respondents can be explained, to a large extent, by differences in experiences with telephony use. In comparison to rural respondents, urban users are more likely to employ telephony for business purposes and more able to evaluate the impact of telephony on business indicators.

In addition to experiences with telephony use and impact of such use thus far, those who participated in the semi-structured interviews were asked if and how they expected mobile telephony to impact on their businesses in the future. The women selling at the market in Luganville and Port Vila, for example, said they expected customers to directly order vegetables from them. This way they would be able to establish business niches and increase the profitability of their enterprises.

A comparison between rural and urban respondents therefore suggests that with experience users will themselves generate wider uses of telephony for business purposes. Nevertheless, lessons from other developing countries suggest the government, civil society organisations, and development agencies can integrate telecommunications into existing rural and urban development programs (refer to the conclusion). In particular, in many African and South Asian contexts, telecommunications have been employed as a medium for disseminating information and knowledge to small and business enterprises. In Vanuatu, this remains an under capitalised area of development intervention.

To give an illustration, as part of the household survey, respondents who reported they were farmers or fishermen and had access to telephony (approximately 26 per cent of the total respondents) were asked a series of questions to find out if they were using telephony to increase their knowledge about crop and livestock management, gain information about tides, new products, contact extension workers, and increase awareness about their legal rights. The objective of these questions was not only to evaluate the impact of telephony on 'human capital', but also to find out to if telephony was being used as a medium to promote agriculture and fishery. The responses were recorded on a scale of 0 to 3 (0=no influence, 1=not applicable, 2=influence and 3=large influence).

Table 6.2: Implications of telecommunications for farmers and fishermen

	Garden information	Tide information	Livestock information	New product information	Contact extension workers	Legal rights information
Isini	0.0	0.0	0.0	0.0	0.0	0.0
Middle Bush	0.1	0.1	0.1	0.2	0.0	0.1
Port Olry	1.6	1.6	1.9	1.8	2.0	1.6
Rural	**0.7**	**0.7**	**0.8**	**0.8**	**0.8**	**0.7**
Chapuis	0.0	0.0	0.0	0.0	0.0	0.0
Urban	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
F	1.0	1.0	0.9	1.0	0.8	0.7
M	0.3	0.3	0.5	0.5	0.6	0.5
Total	**0.6**	**0.6**	**0.7**	**0.7**	**0.7**	**0.6**

The women selling at the market in Luganville and Port Vila expect customers to directly order vegetables using mobile phones.

The lack of affordability in telecommunications can be addressed through private sector initiatives and public-private partnerships.

Interestingly, respondents in Port Olry reported the impact of telephony on the above questions were positive, with responses ranging between 'little influence' to 'influence'. The significance of these responses requires further research. Nevertheless, on average, the responses ranged between 'no influence' to 'not applicable' (0.6 to 0.7). There were little differences in response between urban and rural respondents. And most of the respondents perceived these questions were not even applicable to them.

Conclusion and recommendations

The case study has demonstrated that telecommunication liberalisation, the advent of competition in the telecommunication market, and subsequent increase in access to mobile telecommunications is inducing incremental and transformational changes on small and medium enterprises.

Nevertheless, lack of affordability, limited productive uses of telecommunications and lack of complementing infrastructure remain key concerns for the further exploitation of the benefits of a liberalised telecommunication sector in the country.

Affordability

Many may view that the phenomenal spread of telecommunications since the liberalisation of the sector means 'affordability' is no longer an issue. However, in a recent and influential report, Milne (2006) has argued that 'affordability' remains a key concern in developing countries where the direct and indirect cost of accessing telecommunications, viz:

(a) prevents people from owning a mobile and/or using it only in emergencies

(b) discourages people from making as many calls as they need to even if they own or have access to telecommunications.

The findings of this research project suggests that both of these remain inhibitors of access to and use of mobile telephony in Vanuatu.

Milnes (2006) suggests that lack of affordability in telecommunications can be addressed through private sector initiatives and public-private partnerships. The telecommunication companies in Vanuatu have introduced commendable marketing strategies to increase the affordability of mobile telecommunications to their customers whilst maintaining profitability. Low priced new handsets, reduction in cost of SIM, lower tariff rates, per second billing, over-the-air re-fill services are some of the strategies that are being promoted. For example, per second billing reduces the risk of notching up another whole minutes charge by speaking for a little bit too long. Over-the-air refills enables people with low cash balances to fit their spending more precisely to their actual limits and allows individuals to add credit to a prepaid account remotely.

Notwithstanding the importance of such initiatives by private telcos, lessons from other developing countries suggest government, civil society organisations, and development agencies can play a collective role in mitigating issues of affordability. Box 6.4 provides some examples of successful partnerships taking place in other developing countries.

Elaborate uses of telephony for enterprise development

This case study on small and medium enterprises in Vanuatu has demonstrated that greater access to telecommunications is reducing transaction costs, and expanding opportunities. Nevertheless, entrepreneurs are rarely experimenting with more elaborate

Box 6.4: Examples of partnerships to address affordability

The Government of South Africa recognises affordability as core to its Universal Service Policy. In partnership with telecommunication service providers, it has categorised users into five generic categories, and identified those who require a subsidy and those who do not. It has committed the use of 0.16% of its contribution to the Universal Service Fund to be utilised to provide the subsidy (Milne 2006).

South Africa has also experimented with a wide range of 'access points' to make mobile telephony more accessible and affordable to a wide range of income groups. DFID commissioned studies in both rural and urban South Africa find low-income groups combine cheap container phone outlets in urban areas or commercial phones in rural areas with more expensive mobile phones. Individuals often make calls from commercial phone points and receive calls from mobile phones. In rural areas, individuals are willing to walk a distance of between 30 minutes to an hour to the nearest public access point to make a small but significant saving on their phone calls (Skuse and Cousins 2007, 2008).

In the Gambia, the second service provider, Africell, is working in collaboration with a local NGO to roll out more than a 1,000 telecentres throughout the country. The telecentres will be operated by unemployed youths who would get 10% of the income earned (Milne 2006).

Two telecommunication companies in Egypt, Mobikom-Kavkaz and Mobinil, are pioneering the concept of 'variable call tariffs' by area. Many rural and low-income areas are charged 'local call rates' that are substantially lower than those charged in urban areas and to higher income groups (Milne 2006).

The Grameen Bank, village based micro-finance organisation, in Bangladesh has been leasing cellular phones to successful female members to operate as village pay phones. Research demonstrates women supplying the phones have gained a source of steady income while ordinary villages buying these services have profited from rapid and effective communication in their everyday lives and during times of emergency and natural disasters (Bayes 2001).

uses of telephony to further exploit the potential of telephony for enterprise promotion. Box 6.5 illustrates different ways in which the government and its development partners can employ mobile telecommunications as an innovative platform to target enterprises.

To what extent the examples included in Boxes 6.4 and 6.5 are viable options for Vanuatu requires careful deliberation by government, development agencies, civil society, and service providers.

Box 6.5: Exploiting the potential of telecommunications

According to research conducted by the Centre for Knowledge and Society, Nokia, small businesses in rural areas in developing countries often have to travel significant distances to the markets or other places to distribute their goods, and cannot make arrangements in advance with other buyers. Access to mobile phones can significantly change the logistical issues faced by rural traders and home entrepreneurs by allowing for telephone based ordering systems, delivery requests, and the ability to make more reliable and advance arrangements with business partners or clients.

The Morarka Foundation Project in Rajasthan, India is using mobile telephone to advice farmers participating on the project about crop and livestock management, provide instant help at unexpected times, and send alerts on public health issues such as polio camp.

(Adapted from Sinha 2007)

People have yet to exploit the potential uses of telephony to promote existing businesses or start new enterprises.

Telephony access needs to be supported through improvements to complementary infrastructure such as inter-island shipping, roads and regular access to electricity.

Complementary infrastructure

This research project on the social and economic impact of telecommunications in Vanuatu has demonstrated telecommunications can significantly contribute in promoting small and medium enterprises. However, this necessitates complementary infrastructure such as efficient inter-island shipping networks and roads for transporting goods to the market, as well as regular access to electricity for charging and maintaining access to mobile telephony.

While Vanuatu has made significant improvements in access to telecommunications through the liberalisation of the sector, the availability and performance of the other complementary infrastructure is often dismal (Pacific Economic Survey 2008). This section has shown that lack of access to electricity and inefficient inter-island shipping especially have increased the cost of doing business and reduced the profitability of small and medium enterprises. Further exploitation of the positive impacts of telecommunication liberalisation will require investments in such complementary infrastructure.

7. Case Study: gender and telecoms

Men are more likely to own mobile phone than women in both rural and urban areas. Women's ownership of mobile phones is shaped by their relative influence in the intra-household decision making processes.

This case study presents findings from a quantitative and qualitative research on the social and economic implications of telecommunication liberalisation for men and women in rural and urban Vanuatu.

The research draws on a household survey conducted amongst six representative communities in rural and urban Vanuatu with an overall sample of 185 households. The survey data from these communities is gender disaggregated, enabling an analysis of the gender differences in patterns of use of services, and impact of telecommunications on men and women. The qualitative data was gathered through semi-structured interviews and focus groups discussions with 90 male and female participants from the researched areas.

The research findings demonstrate differences in gender roles and responsibilities, and also suggests gender cross cuts with other social relations to define men and women's experiences with greater access to telecommunication services.

This case study suggests that policy makers be cognisant of the gendered impact of telecommunication liberalisation, and ensure concerns of men and women are equally taken into account in policies relating to telecommunication liberalisation.

In order to present the research findings, this chapter has been divided into six sections. It begins by outlining the rationale behind examining the linkages between gender and telecommunications, and the research methods employed to conduct this case study. This is followed by summary of research findings on gendered patterns of access and ownership of telephone; patterns of use of telephone; and perceptions of the benefits and costs of greater access to telecommunication services.

Rationale behind the case study

Gender inequality remains a paramount concern for policy makers in Vanuatu. The government's commitment to the Convention on all Discrimination of Women at the international level and implementation of Good Governance and Public Sector Reform, and the National Children's Policy 2007-2011 serve as examples of policies aimed at greater gender inclusion. In spite of these efforts, macro-level indicators and studies suggest women are lagging far behind of men (Rosalind and Toka 2004).

The UNDP's (2006/7) gender-related indices for Vanuatu suggest gender inequalities in income earned, number of positions held in parliament by women and more[1].

1. http://hdrstats.undp.org/countries/data_sheets/cty_ds_VUT.html

Lessons from other developing countries suggest that policies aimed at increasing access to telephony does not 'trickle down' equitably.

Micro-level and ethnographic research[2] in Vanuatu points to considerable variations in the gendered experiences of men and women in both rural and urban areas. For instance, the AusAID's 'Drivers of Change' (2006) points out that while participation of women in comparison to men in mainstream politics is low, there is considerable variation at the inter-island level with some island communities more receptive to accepting women in leadership positions than others. Similarly, research on gender and land related issues points to differences in men and women's access to land in matrilineal and patrilineal communities (Naupa and Simo 2006). These studies therefore, caution us against treating men and women as homogenous groups, and extrapolating macro-level data to explicate gender based disadvantage at the intra-household and community levels in rural and urban areas.

Lessons from other developing countries suggest that policies aimed at increasing access to telephony does not 'trickle down' equitably. Gender based inequalities in patterns of use and access to telecommunications and ICTs in general, has been a major concern within the development community (See: World Bank 2005, UNDP and UNIFEM 2004).

At the same time, ethnographic research on telecommunications in developing countries points to ways in which pre-existing relations between men and women interact with and shape access and use of telephony. For instance, Skuse and Cousins (2008) points out changing intra-household economic relations and the increase in female-headed households have in fact translated to women having greater access to telecom than men in urban South Africa.

In this respect, being sensitive to macro-level gendered inequalities combined with a more contextualised analysis of variations in gender experiences within and between rural and urban Vanuatu is critical for assessing the gendered ramifications of telecommunications.

Research methods

The case study draws on a combination of quantitative and qualitative research methods to elicit the impact of telecommunication liberalisation on men and women.

The quantitative research is based on a household survey carried out amongst 185 respondents in six sampled areas representing rural and urban locations throughout Vanuatu. The data was disaggregated along gender and geography to analyse patterns of differences and similarities in responses. Chapter 5 discusses the quantitate research findings in detail. This section focuses on the gender dimensions of the research findings on patterns of ownership and use, and perceptions of impact of telecommunication services on livelihoods and existing information and communication flows.

The qualitative research draws on 10 focus group discussions and semi-structured interviews conducted in Port Vila, Luganville, Lenakel, Middle Bush and Port Olry with over 90 participants. The qualitative research methods for this case study focused specifically on the following issues:

1) Household decision-making and resource allocation processes
2) Access and ownership of mobile telephony
3) Everyday uses of mobile telephony
4) Social and cultural symbolism behind mobile telephony
5) Perceptions of impact of mobile telephony.

2. See also: Jolly 1994, AusAid 2006, Naupa 2005, Erikson 2006 amongst others.

Focus group discussions provided a forum for participants to discuss their thoughts and experiences of issues identified by the research team and facilitated by the moderator (also see: Fallon and Brown 2002). The semi-structured interviews were about building rapport with the participants and gathering information about their individual and household socio-economic backgrounds, and patterns of access and use of telephone.

The qualitative research methods:

1) Focused on open-ended questions to allow the interviewers to probe as and when needed, and the interviewees to open up about their experiences and thoughts.

2) Discussed the above outlined issue both separately and together, with male and female users of telephony of various ages in rural and urban areas. The focus was at the household and extra-household levels, looking into resource allocation processes, socio-cultural meanings and value of mobile telephony, and their gendered implications.

3) Given the sensitivity of much of the responses sought, each interviewee were selected by the researchers and based on his/her willingness to participate. Many of the interviewees had participated in the household level survey.

4) A wide variety of individuals were interviewed based on a combination of the following characteristics: gender, age, marital status, level of education, occupation, location, and positions in communal hierarchy.

5) The focus of the questions outlined below were on 'mobile telephony' as opposed to telephony in general because of the following reasons: (a) fixed line and mobile telephony are both covered by the household-level questionnaire; (b) mobile telephony has distinctive characteristics (such as accessibility) that merit attention; (c) recent policy changes in the telecommunications sector is targeted specifically at increasing access to mobile telephony.

Demographic characteristics of respondents

As detailed in Chapter 5, the field survey was conducted with a total of 185 adult respondents, aged 18 years and above, in rural and urban areas of Vanuatu. There was an equal distribution of respondents in rural and urban areas.

62 per cent of the respondents were male whereas 38 per cent were female. The survey was designed to capture equal number of men and women respondents, targeting adult members of households, irrespective of gender. Equal number of male and female interviewers was approached, however, the research team found that the imbalance in gender of respondents was because men were more willing to participate and more forthcoming in their response than women were.

Surprisingly, rural women were more willing to participate than urban women. 57 per cent of the female respondents were in rural areas compared to 43 per cent in urban areas (refer to Figure 5.1 for gender and geographical distribution of the respondents).

The average age of respondents was 35 years old, 32 for male and 36 for female (refer to Figure 5.2). The average age of respondents in rural areas was 37 whereas in urban areas was 32. Furthermore, male respondents on average were 36 years of age while female ones were 32 years of age.

In the focus group discussions, a wide variety of individuals were interviewed based on a combination of the following characteristics: gender, age, marital status, level of education, occupation, location, and positions in communal hierarchy.

Surprisingly, rural women were more willing to participate than urban women.

Gender and geography were important in determining ownership of mobile telephony.

Patterns of ownership of mobile telephony

The household survey included questions to find patterns of ownership of telephony. Section 5 summarised the major findings of the household survey, disaggregated by geography. It was found that on average, there were 1.1 mobile telephony per household in rural areas whereas 2.7 per household in urban areas.

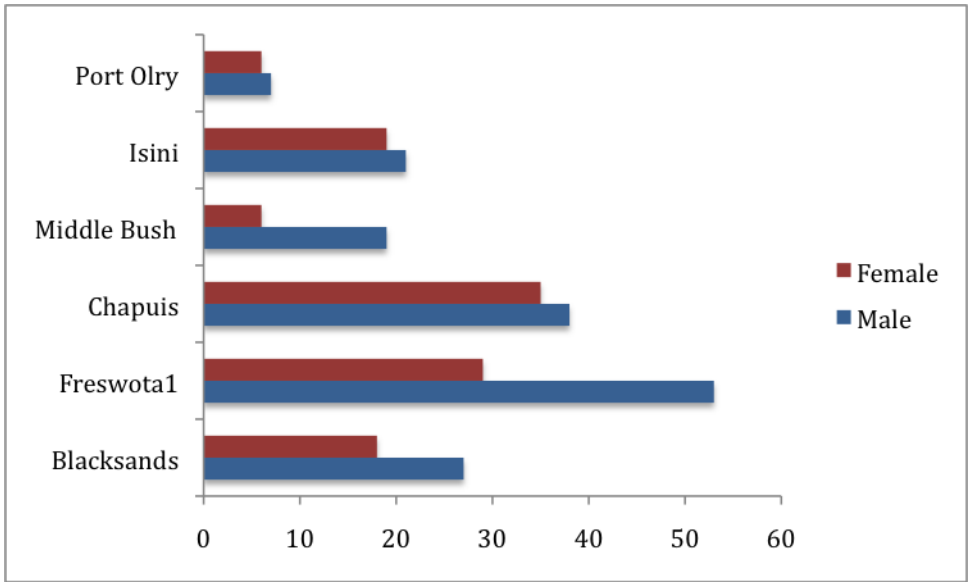
Respondents were also asked to list the gender of household members who owned mobile telephony. The results are shown in Table 7.1 and Figure 7.1 below. On average, there were significant gender disparities in ownership of mobile telephony. There were more men than there were women who owned mobile telephony in both rural and urban areas. At the same time, there were more respondents, men and women, who owned mobile telephony in urban areas than there were in rural areas.

This suggests that both gender and geography were important in determining ownership of mobile telephony.

Table 7.1: Gender disparities in patterns of ownership of mobile telephony

	Male	Female
Blacksandss	*27*	*18*
Freswota1	*53*	*29*
Chapuis1	*38*	*35*
Urban	**118**	**82**
Middle Bush	*19*	*6*
Isini	*21*	*19*
Port Olry	*7*	*6*
Rural	**47**	**31**
Total	**165**	**113**

Figure 7.1: Gender disparities in patterns of ownership of mobile telephony



In semi-structured interviews and focus group discussions with men and women in rural

and urban areas, it was found women were more likely to own mobile telephony in households where they had an independent source of income and/or where they played a significant role in the household level decision-making processes. Box 7.1 below provides some illustrations of women's ownership of mobile telephony. The names of interviewees are fictitious to maintain confidentiality.

Box 7.1: Household decision making processes and women's ownership of mobile telephony

Marie lives in Isangel with her husband and two children. Her husband works as a government officer and she is a housewife. Her husband allocates a certain percentage of his monthly salary for household necessities, and gives this amount to her to manage.

Her husband purchased a mobile phone in July 2008. He allows her to use the phone sometimes. She would prefer to have a mobile of her own. She would use it to contact her husband if he works late, make sure the school fees are made on time, and maintain regular contacts with her relatives in her island. But above all, owning a mobile phone would give her the freedom to decide when and how to use the mobile phone. But the amount her husband allows her to manage is barely sufficient to meet regular expenditures let alone purchase a mobile of her own.

Ruth is from North Efate but has been living in Port Vila with her husband and daughter for the last two years. Her husband owns a local kava bar and she gets monthly rent from a house she owns in Freswota. Both of them keep their separate purses and jointly contribute to regular household expenses.

The two of them each purchased a mobile phone with their respective incomes. She considers owning separate mobile phones important to her and her husband. Her husband uses his mobile phone for his kava business, including contacting suppliers, intermediaries, organising transport and others. She uses the mobile phone for checking on her family in North Efate, sending them a regular supply of goods and household items from Port Vila, and contacting her tenants when rent is due.

Justine is originally from Ambrym but lives in Santo with her husband and children. The major source of income for her household is copra farming. She is in charge of all the household revenue and expenses and allocates a small allowance for her husband. She does not trust her husband to manage household finances. Her husband has a notorious reputation for indulging in kava. She says he did 'black magic' and duped her into marrying him.

She had recently purchased a phone at the time of the interview. She expects to use the phone for staying in touch with her relatives in Ambrym, contacting her children when they are in school and away from the village, tracking school fees, and increasing the efficiency of her family copra business.

Both men and women, in rural and urban areas alike, said they would prefer to own a mobile telephone. There were similarities in women and men's responses. Both men and women said owning a mobile would give them the flexibility to use mobile telephony as and when they wanted. Interestingly, women were more likely to point to the 'private' benefits of mobile telephony use than men were. The majority of women respondents said owning a mobile phone would help 'keep private conversations private'.

However, due to a myriad of interrelated constraints such as lack of electricity, lack of purchasing power, and inexperience using mobile telephony, rural respondents were more likely to use mobile telephone as a household or familial joint property than urban respondents were. Men were more likely to 'own' mobile telephony but allow other household members to use as and when needed.

The majority of women respondents said owning a mobile phone would help 'keep private conversations private.

"Mobile phones are becoming essential … but only a family that has money will be able to afford for both the husband and wife"

Many of the interviewees in rural areas pointed to changes in attitudes towards mobile telephony since the introduction of a second carrier, widespread network coverage, and reduction in costs of mobile telephony. Having at least one mobile telephone in the household was becoming an economic and social necessity. At the same time, interviewees viewed multiple individuals owning as a sign of economic prosperity. As one of the women interviewees in Port Olry stated in the focus group discussion with women, "mobile phones are becoming essential … but only a family that has money will be able to afford for both the husband and wife".

Nevertheless, gender disparities in ownership did not necessarily imply disparities in access to mobile telephony. Women often had access to mobile telephony through men, other family members, and wider kinship networks.

Patterns of use of mobile telephony by men and women

The household survey included a series of questions to gather data on patterns of use of mobile telephony. These included questions on expenditure patterns, nature of mobile phone use, and purpose of using a mobile telephone. The research findings are detailed in Chapter 5. There were little differences in the responses that men and women gave.

To illustrate, respondents were asked to indicate how they used a mobile telephone – make a call, return call, and/or SMS. Both men and women used mobile telephony for making call but used it less for receiving call and using SMS. Men were more likely to use phones for all three purposes than women were (refer to Figure 5.15).

The focus group discussions conducted with men and women separately considered gendered attitudes towards mobile telephony. The responses suggest gender differences in priorities and concerns between men and women.

Men and women who were involved in businesses said they used (or expected to use) mobile telephony for increasing the efficiency of their businesses (Refer to Chapter 6: Case study on telecommunications & small and medium enterprises). In general, both men and women said they used (or expected to use) mobile telephony for keeping in touch with family and friends who lived outside the household, and for emergency purposes.

There were also considerable differences in responses between men and women. The majority of the married women with children (who constituted the majority of female interviewees) said they used/would use mobile telephony for tracking school fees, and keeping a tap on 'male infidelity'. For example, women often paid school fees through the bank and/or a second party. Mobile telephony would allow them the flexibility to call the school from their homes and ensure the fees are paid on time. A wide range of women, from Port Vila to Port Olry, explained to the author of this study that they suffered from constant anxiety about men's whereabouts. Mobile phone was an accessible way of 'keeping a track' on their men, and making sure they were coming home on time.

In stark contrast to the responses that the women gave, men emphasised using mobile phones to get updates on political developments. For example, the men interviewed in Middle Bush, Tanna said sources of news such as radio, TV, and newspapers were difficult to access in the village. Mobile telephone was a convenient way of being informed and exercising citizenship rights.

It was beyond the scope of this research to conduct an in-depth research on explaining the differences in gender priorities and concerns underlying mobile telephone

use. Nevertheless, initial research findings suggest these reflect gender roles and responsibilities between men and women in the researched areas. The majority of women interviewees said they were responsible for 'taking care of the family' which included ensuring the school fees were paid on time. Men, in comparison, were responsible for taking on decision-making roles at the household and community levels. These research findings are also consistent with other research on gender issues in Vanuatu. For instance, Naupa and Simo's (2007) gendered analysis of land rights in Vanuatu points out that men play a greater decision-making role related to land, with minimal participation from women. This is the case even in matrilineal communities where the land is passed through the women's lineage.

Women were more likely than men to lack awareness of how to use mobile phones.

Furthermore, it was found that many women lacked awareness of how to use a mobile. Women interviewees who were not using a phone said they were 'scared' of using a mobile phone. Even those who had access to mobile phone said they did not understand basic functions such as how to find out what the costs of calls were and how to manage their budget. SMS, as shown on the figure above, remained an under-utilised resource by women. SMS is a cheap means of communicating limited information as compared to voice. Research in other developing countries suggest basic functions such as 'call me back' can help send the message across and manage the costs of using a mobile (Horst and Miller 2006, Milne 2006).

Gendered implications of access to telecommunication services

This sub-section draws on quantitative and qualitative research findings to understand the gendered implications of access to telecommunication services. It considers the perceptions of implications of telecommunication services on existing forms of information and communication flow, and on men and women's livelihood. Furthermore, the research also considered perceptions of benefits and costs of greater access to mobile telecommunications.

Gender and impact of telecommunications on information and communication flow

Respondents were asked series of questions to find out how their access to telecommunication services had influenced existing patterns of information and communication. The rationale behind these questions was to generate data on whether telecommunications had adapted to or disrupted pre-existing forms of information and communication.

Interviews were asked which of the following types of information and communication flows did they prefer: face to face, local leader, radio, TV, newspaper, adverts, village information centre, telephone, internet and SMS. Respondents were recorded on a scale of 0 to 4 (0=not applicable, 1=not important, 2=no opinion, 3=important, 4=very important). As Table 7.2 below demonstrates, interestingly, responses were between a scale of not applicable to important (1.4 to 3.4). There were marginal differences in responses by gender.

In general, both male and female respondents thought Internet was 'not applicable', and indicated 'no opinion' for adverts, TV, and SMS. Telephone, face-to-face, local leaders followed by village information centre, radio, and newspaper were considered 'important'. Telephone was perceived as the most important form of information and communication flow.

Many female interviewees said they preferred using mobile phones than public land lines, but switched between the two depending on the nature and length of phone call.

Table 7.2: Gender and impact on information and communication flows

	Face to face	Local leader	Radio	TV	Newspapers	Adverts
Rural	3.2	2.9	2.3	1.5	2.1	1.5
Urban	3.0	3.2	3.1	2.9	3.1	2.5
Female	**3.1**	**2.9**	**2.5**	**2.0**	**2.5**	**1.7**
Male	**3.1**	**3.1**	**2.9**	**2.3**	**2.6**	**2.1**
Total	**3.1**	**3.1**	**2.7**	**2.2**	**2.6**	**2.0**

	Village information centre	Telephone	Internet	SMS	Letters
Rural	2.9	3.4	0.9	2.1	1.8
Urban	2.6	3.5	2.0	2.6	2.6
Female	**2.8**	**3.4**	**1.2**	**2.1**	**2.1**
Male	**2.8**	**3.5**	**1.6**	**2.5**	**2.3**
Total	**2.8**	**3.4**	**1.4**	**2.3**	**2.2**

The above questions focus on both public and mobile telephone. In the focus group discussions, interviewees were asked about their perceptions of mobile telephone and public land line. Female respondents in rural areas in particular perceived mobile telephone to be both a substitute and complement of public telephone (or public land line).

Women interviewees in rural areas said they preferred mobile telephone for 'private calls'. In Middle Bush, Tanna, for example, there was only one public phone servicing three neighbouring villages. Villagers would have to line up for an entire day at times to use the public phone. Women explained this reduced the 'privacy' of conversations. The introduction of mobile phones allowed women to find a private location to call.

The downside of mobile phone was that the calls were more expensive. As one of the women interviewees in Tanna explained, "we get more for our Vatu when we buy a TVL phone card than when we buy a Digicel mobile recharge card…calls are especially expensive when we use our Digicel phone to call a relative in Port Vila who has a TVL mobile".

Many female interviewees said they preferred using mobile phones than public land lines, but switched between the two depending on the nature and length of phone call.

Impact of telecommunication services on livelihood

As part of the household survey, respondents were asked a detailed series of questions allowing them to evaluate the impact of telephony on them and their households' livelihoods. Interviews indicated their responses on a scale of 1 to 4 (1=not applicable, 2=No influence, 3-Influence, 4=Large Influence).

The responses ranged between not applicable to little influence (1.1 to 2.5). There were marginal differences in responses by gender. In other words, on average, male and female respondents did not think that telephony was making a significant impact on their livelihoods (refer to Figure 5.20).

Such results could be due to a number of the following factors:

- For men and women in both rural and urban areas, widespread and affordable access to telephony at the time of the survey was a recent development. While respondents were able to identify how their access to information and communication had been impacted by telephony, as discussed in the sub-section above, they found it more difficult to evaluate the impact of mobile telephony on other aspects of their livelihood.

- The use of telephony throughout the researched areas remained limited to certain purposes (i.e. ones that have yielded more significant results such as improved information regarding family events).

- Furthermore, most respondents, in qualitative interviews, expected telephony to have a large impact on certain key indicators such as 'help in time of emergency'. For instance, interviewees in rural areas thought mobile telephony could be used to call for an ambulance if a family member were fall ill; find information from doctors about basic precautions to take before the ambulance arrives; and more. But this question only sought responses about experiences and not expectations of benefits.

Nevertheless, it is important to highlight the indicators that yielded some significant results. Both male and female respondents said impact of telephony was relatively high on social and financial capital. In particular, respondents thought telephony was aiding in increasing contact with family, improving information regarding family events, reducing cost of travel, increasing speed of communication, and surprisingly, improving access to family health.

Along with questions to elicit responses on the implications of telecommunications on overall livelihoods, interviewees were also asked how damaging they perceived it would be to their economic activity if they could no longer use telephone. The responses were disaggregated along gender lines. Interviewees were asked to indicate their responses on a scale of 1 to 4 (1=will not continue, 2=could continue with difficulty, 3=no opinion, and 4=no difference). This was to allow men and women respondents to define their own understanding of 'economic' benefits instead of using pre-defined ones, as done on the question above (refer to Figure 5.21). Surprisingly, this question yielded more significant results than the one on the impact of Telephony on overall livelihoods.

Once again, there were little variations in responses by men. Majority of male and female respondents perceived they would be able to continue but with difficulty. Interestingly, there were a slightly higher percentage of women interviewees who thought they would not be able to continue than men interviewees did. This evidence lends further support to the importance men and women are placing on telephony throughout Vanuatu.

Perceptions of the costs of using mobile telephone

Majority of the women participants in qualitative discussions also pointed out that mobile telephony was not a zero sum game. In other words, the benefits of mobile telephony also comes with social and economic costs.

Interviewees pointed to many of the advantages of having access to mobile telephone that were similar to those found in the household survey. Telecommunications helped in business transactions, emergencies, maintaining contact with friends and relatives who were in urban or rural areas and more. But "Hemi kakai mani" (it eats up our money) was a common sentiment expressed by male and female interviewees in both rural and urban areas.

The the benefits of mobile telephony also comes with social and economic costs.

Many interviewees spoke of the importance of managing the 'dark side' of mobile telephony.

Interviewees with higher cash income expressed anxiety over the 'added financial' burden of having a mobile telephone. For example, a female interviewee who participated in a focus group discussion in Isangel, Tanna mentioned that while mobile telecommunications was helping her considerably in her every day life, it was also causing anxiety and stress from her relatives who often came to her house to ask for change to buy credit and/or to charge their mobile phones. She was working as a government officer in Isangel and had a steady source of income whereas her relatives were farmers and were always short of cash.

Similarly, many interviewees spoke of the importance of managing the 'dark side' of mobile telephony. In rural areas, in particular, interviewees were concerned about the unprecedented increases in speed of information and communication flow introduced by mobile telephony. For example, as one of the female interviewees in Port Olry stated, "I am happy but also scared that what I say is passed instantly to the other person when I use a mobile phone. Before, I would have to wait in line for hours to use a public phone and/or send messages through someone else. I had plenty of time to think. But now, if I am not careful about what I say in the moment, I am scared I will damage my relationship with my friends and family".

In urban areas, mobile telephones were reinforcing old myths and creating new ones. Interviewees in Port Vila, in particular, pointed out that they often switched their mobile phones after 9 or 10 p.m. because mobile phones were prone to black magic in the late night. As a young student from the Vanuatu Institute of Technology explained, "a sorcerer or someone who has ill will against you can call and take your voice when you answer the phone. He can then use your voice for 'black magic' purposes and harm you".

Men and women interviewees in Luganville and Port Vila were concerned about the 'health' implications of mobile phones. As a successful business women, involved in a number of ventures from retail store to fishing business, explained in a focus group discussion in Luganville: "The power of Digicel phones are too strong. That is why they are able to get such widespread network coverage. I get a headache and feel nauseous every time I use the phone for longer than 5 minutes. Many of my friends and relatives have similar complaints".

Women interviewees in urban areas also pointed out that mobile telephones could both prevent and cause marital breakdown. Women who were suspicious of their husbands could use mobile phones to keep a tap on their men. But interviewees could also recall 'several incidents' when wives found out that their husbands were using mobile phones to call other women.

Conclusion

These research findings suggest gender interacts with other social differences such as geography, experience with mobile telephony, economic status and others to define women's perceptions of benefits and costs of mobile telephones. Men are more likely to own mobile telephone than women are in both rural and urban areas. There are also gender disparities in ownership of mobile telephone amongst women. Women's ownership of mobile telephone is shaped by their relative influence in the intra-household decision making processes. Analysis of men and women's attitudes and concerns towards telephony reflects different priorities and concerns that lie behind the use of telecommunication services by women and men. Many of these reflect differences in gender roles and responsibilities, and also suggests gender cross cuts with other social relations to define men and women's experiences with greater access to telecommunication services.

8. Case study: rural - urban linkages and telecoms

Households in Vanuatu are 'stretched' between rural areas and urban areas and increasingly between rural areas and overseas. Migration is an essential component of household livelihoods in rural areas. Greater access to telephone services is playing a critical role in 'managing distance' between rural and urban households, and facilitating the redistribution of resources to rural households.

The case study presents findings from a quantitative and qualitative research on the impact of telecommunication liberalisation on rural – urban linkages. It examines to what extent and how telephony (mobile and fixed line) is being used to maintain financial and social linkages between migrant sending and migrant receiving areas.

A combination of quantitative and qualitative research methods are employed in this case study. The research draws on a household level survey conducted amongst six representative communities in rural and urban Vanuatu with an overall sample of 185. The qualitative data was gathered through semi-structured interviews and focus groups discussions with 90 male and female participants from the researched areas. The research was designed to generate qualitative and quantitative data on the patterns of migration from rural areas, social and financial linkages between migrant sending and migrant receiving households, and the role of telephony in maintaining these linkages.

The research findings of the case study suggests that policy makers be cognisant of the important role telecommunications is playing in redistributing resources to rural areas. Future polices to accompany telecommunication liberalisation should consider lessons from other developing countries, and the role of mobile telephony in further enhancing these linkages.

In order to present the research findings, this chapter has been divided into six sections. It begins by outlining the rationale behind examining rural and urban linkages and the role of telecommunications, and the research methods employed to conduct this case study. This is followed by summary of research findings on push and pull factors contributing to migration, and the role of telecommunication services in maintaining social and financial linkages between rural and urban areas.

Rationale for the case study

Migration between rural and urban areas and between rural areas and abroad are becoming an integral part of life in Vanuatu. More than 70 per cent of the population of the country lives in rural areas (AusAID 2007). However, urban centres of Vanuatu are rapidly expanding with growth rates of 4.2 per cent per annum in Port Vila and 3.8 per cent in Luganville. Migration from rural areas to urban areas remains one of the primary causes of urban growth. Studies have argued post-colonial policies, lack of economic opportunities outside of subsistence agriculture, flight from disputes and social restrictions in the villages, and inter-island marriages are some of the major 'push' and 'pull' factors that account for increasing rates of urban migration in Vanuatu (see AusAID 2007, UNESCAP 2002 for further details).

Furthermore, New Zealand and Australia have also introduced seasonal workers

Access to telecommunications can play a significant role in maintaining rural and urban linkages and in securing household livelihoods

schemes to provide employment opportunities for workers in the Pacific, including in Vanuatu. For example, New Zealand introduced a Recognised Seasonal Employer (RSE) scheme on 30 April 2007. The scheme allows 5,000 workers from the Pacific to work in New Zealand to meet labour shortages in the horticulture and viticulture industries. The aim of the scheme is to encourage economic development, regional integration and good governance within the Pacific, by allowing preferential access to workers who are citizens for eligible Pacific countries. Vanuatu has provided the greatest number of workers to the RSE scheme with 1,698 Ni-Vanuatu workers approved to 22 May 2008. Visas are granted for up to seven months (but workers may be able to reapply) (Refer to: McKenize, Martinez and Winters 2008 for further details).

Lessons from developing countries facing similar rates of migration from rural areas suggest 'managing distance' by maintaining social ties and flow of remittances are crucial for household sustenance, mitigating shocks, and reducing overall vulnerability.

Access to telecommunications, in this respect, can play a significant role in maintaining rural and urban linkages and in securing household livelihoods. For instance, a recent study assessing demand for and use of telephony in rural areas in 3 African countries (Botswana, Ghana and Uganda) found that 25% of rural telephone users used telephony to organise financial transfers (remittances) from urban areas (McKerry 2002). Along similar lines, the DFID study (2005) on economic impact of telephony on rural livelihoods in India, Tanzania and Mozambique found that most rural households in the surveyed areas relied on mobile telephony to maintain social ties and financial flows with kins living in urban areas and abroad. Skuse and Cousins' (2008) study on the Eastern Cape found investment in the use of telephony for rural households with household members living in cities was critical to the manner in which social distance, vulnerability and risk were both managed and offset.

In light of the above, this case study examines the following issues with regards to the role of telephony in maintaining rural and urban linkages between migrant sending and migrant receiving areas.

1) Rural-Urban migration patterns: push-pull factors, individual and/or household

2) Extent to which rural and urban households depend on social ties, flow of information and remittances for household and individual livelihoods.

3) Patterns of use and access of telephony in migrant sending and migrant receiving households in rural and urban areas,

4) Extent to which and how telephony (fixed and mobile) are used to manage distance and maintain rural-urban linkages.

5) The perceptions of change experienced and expected from increased access to telephony on maintaining rural-urban linkages.

The above outlined issues, 1-3, are on patterns of migration, individual and household dependence on rural-urban linkages, and access and use of telecoms in migrant receiving and sending households in rural and urban areas. The major focus of the study is on 4-5, on the role of telephony for managing rural-urban linkages, changes experienced by those who already have access to telephony, and changes expected in light of deregulation of telecommunication sector.

Based on the above analysis, the case study will document 'voices from below'[1] which can inform policy makers, and highlight the possible implications of expanding telecommunication access in rural and urban areas.

1. Adapted from Narayan, D. et al. (2000) 'Voices of the Poor: Can Anyone Hear Us?' World Bank: Washington D.C.

Research methods

Both quantitative and qualitative research methods have been employed in conducting the field research for the case study. The quantitative research methods draws primarily from the household survey. The household survey recognises 'migration' as a source of livelihood. It includes questions to elicit household level information on migration (such as number of people living outside the household; material and social support received by those living outside of household; fluctuations in the nature of support; and extent of dependence on support); patterns of use of telephony (such as questions pertaining to access, ownership and use); and impact of telephony on livelihoods (changes in social and financial support received from those living outside the household).

The qualitative research included interviews and discussions with over 90 individuals. Interviewees were migrants in Luganville and Port Vila and individuals in rural areas with household members who are currently living in urban centres.

Prevalence and causes of migration

The household survey found migration, both within Vanuatu and overseas, was an integral part of life for the respondents. Vast majority of households had family members living outside the household. 88% of the total respondents reported they had household members living in other parts of Vanuatu and 54% said they had members living overseas. Furthermore, 95% respondents in rural areas said that they had household members living elsewhere in Vanuatu (most likely in urban areas) and 54% said overseas. In urban areas, 81% had household members living in other parts of Vanuatu (most likely in rural areas) and 53% said overseas (refer to Figure 5.6).

In the focus group discussions, respondents gave a number of 'push' and 'pull' factors that accounted for such high rates of migration from rural areas to urban areas and overseas. Most of the respondents stated that while rural areas had abundant land and food, it was difficult to find employment and generate a steady income in rural areas. Inadequate access to basic services such as education, health, drinking water, electricity and others in rural areas was also forcing people to migrate from rural areas.

There were also differences in responses by gender and age. Married women who had moved to Port Vila and/or Luganville pointed to the difficulties they faced working in the fields in the islands of their origin. Younger women who were living in Port Vila and Luganville for educational purposes said the lack of freedom and autonomy they experienced in rural areas prompted them to migrate. Still others considered the 'lure of city life' was important in their decision to leave rural areas.

Majority of the government departments, companies, hotels, construction, and other types of employment are concentrated in urban centres of Port Vila and Luganville. Access to services such as schools, hospitals, and others are far more accessible in these centres. And yet, unemployment, underemployment, lack of security of tenure, lack of affordable housing arrangements, basic services are only some of the many symptoms of the rapidly urbanising centres.

Consequently, respondents were increasingly opting for alternative options to migration. Many respondents either had household members overseas and/or expressed interest in migrating overseas themselves, particularly to New Zealand and Australia under their seasonal, guest workers' schemes.

According to the respondents, migration from rural to urban areas and/or to overseas tended to be individual rather than household based. A recent study by the University of

The majority of respondents reported household members living in other parts of Vanuatu or overseas.

The research findings suggest flow of goods and services is an important component of livelihoods for both migrant sending and migrant receiving households.

Waikato on the New Zealand RSE scheme finds that most of the workers are unmarried men and women are more inclined to participate in the scheme from Vanuatu (McKenzie, Martinez and Winters 2008). Furthermore, the research finding for this case study on migration, livelihoods and telecommunications in Vanuatu suggests even when an entire nuclear household migrated to urban areas, it was common for them to maintain financial and social ties with their kinsmen in rural islands.

The research findings therefore point out households and families in rural areas were increasingly 'stretched' between urban areas and overseas.

Economic and social linkages between migrant sending and receiving households

The research findings suggest flow of goods and services is an important component of livelihoods for both migrant sending and migrant receiving households.

All of the 90 participants in focus group discussions and semi-structured interviews said they engaged in varying levels of financial transactions with relatives and household members living in rural areas and/or urban areas and/or overseas.

Interviewees in rural areas said their households were receiving varying amounts of cash and other consumer goods (such as soap, clothes and non-perishable food items) from household members in urban areas and overseas whereas urban interviewees were receiving food (vegetables and root crops) from their families and household members in rural areas.

Respondents in rural areas were receiving the highest and most regular amount of cash transfers (or remittances) from those living in urban areas and/or overseas. Interviews stated they received between 2,000 Vatu to 10,000 Vatu the last time they received cash. The remittances were to contribute towards regular household necessities, school fees, and special occasions. The flow of cash and goods increased during special occasions such as weddings, custom ceremonies, funerals, and during times of financial hardship when family members pooled resources together. Furthermore, interviews stated these cash transfers from household members and kin living in urban areas and/or overseas was an important supplement to household income, and critical during financial hardships.

It was difficult and beyond the scope of the study to quantify the inflow of cash and other goods from outside of the household. Nevertheless, as part of the household survey, respondents were asked to what extent their household was financially dependent on household members living outside of the household (elsewhere in Vanuatu and overseas). Responses were tabulated on scale of 1 to 4 – not at all, a little, quite a lot, and a lot (refer to Figure 5.7).

Majority of the responses ranged between 'a little' to 'quite a lot'. 30% of those in rural areas responded 'quite a lot' whereas only 14% responded the same in urban areas. This further lends support to the qualitative research finding that rural areas were more dependent on economic transactions from family members than urban ones were.

A recent report by AusAID helps provide an explanation for the financial transfers observed in this case study. The report points out amongst many communities in the country, individuals who enjoy financial success are expected to redistribute amongst their clans and communities. However, the report goes on to argue "…this creates a 'tall poppy syndrome' within rural communities, discouraging individuals from individual

advancement" (Cox, Alatoa et al. 2008, pp.15) although does not elaborate to explain in the context of Vanuatu.

While this issue merits more detailed attention, preliminary findings of this case study suggest that financial transfers from the urban areas to their rural household and family members are an important component of rural livelihood. In other words, rather than being growth inhibiting, the cultural imperative of having to contribute may actually be a medium for redistributing wealth to rural areas. In addition, the flow of cash, consumer goods, and food between migrant receiving and sending households suggests that such transfers is likely to be based on relations of reciprocity.

The flow of cash, consumer goods, and food between migrant receiving and sending households suggests that such transfers is likely to be based on relations of reciprocity.

In addition to financial transfers, interviewees also pointed to the importance of maintaining social ties (or social capital) with migrant sending and migrant receiving households. Interestingly, many of the reasons given reflected the underlying tensions between modernity and tradition (or Kastom) that colour ongoing debates about land, politics, economy and society in Vanuatu. For example, even urban respondents who had no intention of returning back to the village of their origin would romanticise about life in their islands and thereby justify the importance of maintaining ties with their rural roots.

The following quotation from a women's only focus group discussion in Port Vila serves as an example of such romanticisation of the island way of life: "Quality of life in the island is much better. We work in the garden and consume what we produce. We do not spend much money. But in Port Vila, everything has a price…I like to return to my island during holidays and special occasions to go back to how things were before".

Similarly, in rural areas, interviewees expressed anxiety and frustrations over family and community members loosing respect and authority towards chiefs, elders and traditional hierarchies once they moved to urban centres. Regular contact was therefore viewed as critical for 'managing distance' and maintaining tradition.

Furthermore, interviewees viewed investments in the maintenance of social ties across the stretched household was a form of social safety net. For example, a topic of discussion amongst recent migrants in Blacksands was the exponential and yet conflict-ridden ways in which Port Vila was developing. The participants felt it was important to maintain ties with their islands in order to have a safe haven to return if and when land related disputes and conflicts erupts in Port Vila.

Patterns of information and communication channels

The semi-structured interviews included a series of questions to gather information on patterns of information and communication between migrant sending and migrant receiving households.

According to the interviewees, the three main mediums of information and communication were: face-to-face, public telephony and mobile telephony. The rural interviewees said their household and family members often came back to the island for visits during Christmas/new year and special occasions such as marriages and kastom ceremonies. But they used public and mobile telephone to maintain regular contact with those living outside the household.

In focus group discussions, majority of the participants (85 per cent) said they preferred mobile telephone to public telephone for calling their relatives who lived outside the household (i.e. in rural areas, urban areas and/or overseas). Public telephones were

Regular contact was viewed as critical for 'managing distance' and maintaining tradition.

rarely located in convenient areas. Those is rural areas would have to walk long distances to make a call or receive a call. Those in urban areas would rarely be able to call as and when they wanted, and would have to rely on prior agreement and/or sending messages through various channels to be able to speak to the their families and relatives on the public telephone.

There was a consensus amongst interviewees that one of the major incentives for acquiring a mobile telephone was to maintain contact with family and friends living outside the household. This was also reflected in responses given to subsequent questions on patterns of use of telephone. For instance, interviewees were asked to list the destination of their ten recent calls. Many of the destinations rural interviewees listed were in urban areas and vice-versa for urban interviewees.

Nevertheless, interviewees complained the unit charge for using mobile telephone was significantly higher than for public land lines. Many rural interviewees said they were reserving their mobile re-charge credit for shorter and urgent calls, and were willing to walk the extra mile to make a longer but relatively cheaper call through public phone. In this respect, lack of affordability and differences in prices between mobile and public telephone were the key impediments to more widespread use of mobile telephone.

Impact of mobile telephony

The liberalisation of the telecommunications sector and widespread network coverage was having positive implications for migrant sending and receiving households.

Interviewees reported greater access to mobile telephony was increasing the speed and reliability of communication channels, and was saving the time and costs of travelling to the nearest public phone. These advantages are reflected in the quotation below from a female interviewee in Port Vila:

> *Digicel I mo gud from se bifo mi no save kasem ol famli blong mi long island mo olketa tu i hard blong kasem mi from oli mas wokbaot kasem nara village blong toktok mo samtaem reseption I no klia.*
>
> (Greliana, July 10, Port Vila)

Nevertheless, due to the differences in costs between mobile and public telephone use, the evidence suggests users may use the two access points as complements rather than as substitutes.

Furthermore, mobile telephone may facilitate and expand the flow and redistribution of resources between rural and urban areas.

Interviewees in urban areas recalled many ways in which mobile telephone would help in sending and receiving goods from rural areas. For instance, one of the women interviewed in Port Vila said she sends a regular supply of household goods such as Kerosene, rice and soap to her parents in her village. Her parents have recently acquired a mobile telephone and she expects this will help in quickly finding out what, when, and how they want their supplies to be delivered.

Interviewees who were sending and receiving remittances said the most common mediums were the following: bring it home in person, send through another person (relative, neighbour), merchant, and bank transfers through the National Bank of Vanuatu. Many of the interviewees reported mobile telephone is facilitating or expected to facilitate the flow of remittances as is illustrated in Box 8.1 below.

Furthermore, some of the interviewees also suggested that mobile telephone may help in 'expanding' the redistribution of resources to rural areas. For instance, one of the interviewees in Port Olry said she used a neighbour's mobile telephone to contact her relatives in Luganville and Port Vila to request them to contribute towards a fund raising she was organising at the time of the field research. She said this was the first time she was able to get a hold of so many people who were willing and able to contribute. She expected to use mobile phone for future fund raising events.

Mobile telephones may help in the redistribution of resources to rural areas.

Box 8.1: Role of Mobile Telephone in the Redistribution of Resources to Rural Areas

Margaret lives in Tanna with her husband and three children. Her eldest son has been living in Port Vila for the last five years. He works in a Chinese wholesale store. He sends her a small income (5,000 Vatu) every few months to contribute towards schools fees for his siblings and household necessities. He sends the money through a retail store in Tanna, which receives supplies from the Chinese store he works for in Port Vila. The store takes a small commission and passes the remaining to Margaret when she comes to claim it at the store.

Her son calls the nearest public phone (adjoining the Lenakel market and a five hour walk from her village) and passes a message to Margaret every time he is about to send her money. She says it can take a few days before she gets his message.

She had recently acquired a mobile telephone at the time of the interview. She expects it will save her a lot of time when her son is sending her money, and will help her depend on him financially in case of emergency.

The mobile-based initiatives reported in the case study are happening organically. Nevertheless, policy makers and private sector may have an important role to play in further capitalising on the benefits of telecommunication liberalisation, and the ongoing redistribution of resources to rural areas.

In particular, research in African countries where there are high demands for money transfer between rural and urban areas suggest mobile banking can provide an important avenue for users for remitting finance at a distance, and offer financial inclusion to the un-banked (Research ICT Africa 2008). The extent to which this is a viable option for Vanuatu however requires careful debate and discussion amongst policy makers, private sector, ordinary citizens and other concerned parties.

Conclusion

The research findings demonstrate that households in Vanuatu are 'stretched' between rural areas and urban areas and increasingly between rural areas and overseas. Migration is becoming an essential component of household livelihoods in rural areas. Telecommunication liberalisation and greater access to telecommunication services is playing a critical role in 'managing distance' between rural and urban households, and facilitating the redistribution of resources to rural households.

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9. Conclusions and recommendations

This research project has drawn on quantitative and qualitative research methods to study the social and economic impact of introducing telecommunications throughout Vanuatu. The research considered the impact of telecommunications on household livelihoods in rural and urban areas, on small and medium businesses, migration and social and economic linkages with rural areas, and gender dynamics. This section summarises the major findings of the study and makes policy recommendations to further profit the benefits of telecommunication liberalisation.

Impact of telecommunications on livelihoods in rural and urban Vanuatu

The household survey set out to find how households use telephony in rural and urban areas, and in turn, how such uses impact on household livelihoods. It therefore identifies the linkages between contexts (rural/urban), patterns of use (including access and/or ownership of phones) and impacts on livelihoods (livelihood strategies and vulnerability of context).

The key findings of the survey are that telecommunication liberalisation has had the following effects on the researched areas:

- Significantly increased access to and use of mobile telecommunications throughout Vanuatu and in rural areas in particular.
- Has made mobile telephony the preferred mode of access to telephony in both rural and urban areas.
- Is reducing the 'digital divide' in access to telecommunications between rural and urban Vanuatu.

In terms of patterns of phone use:

- Rural users are more likely to share mobile phones with other household members whereas urban ones more likely to own.
- Digicel is the preferred service provider in rural areas while TVL in urban areas.
- Rural users tend to use mobiles primarily for making calls while urban ones are more experienced users and use mobiles for making calls, SMS, and receiving calls.
- On average, rural users spend more on public telephony than their urban counterparts whereas urban respondents more on mobile telephony than rural respondents.
- A higher percentage of rural users spend more on mobile telephony than they do on public telephony.

- Rural and urban users alike use mobile telephony more than private and public telephony for emergencies, communicating with family and friends, and business purposes.
- Majority of those who do not own a mobile telephony intend to acquire one in the next year.
- Primary reason for current non-use remains the high cost of using telephony including costs of charging and opportunity cost of finding network coverage.

In terms of the relationship between telecommunication and livelihoods, the research suggests:

- There is a positive relationship between perceived access to telecommunications and perceived livelihood change.
- The impact of telecommunications on livelihood is positive for social and financial capital.
- In particular, rural and urban users reported increase in access to telecommunications is leading to increasing contact with family and friends, improving information regarding family events, reducing cost of travel and increasing speed of communication.
- Both rural and urban users view telecommunications as critical for their economic activity and will find it difficult to continue if they could no longer use telephony.
- The research assesses the means and preferences of information and communication prior to and as a consequence of telecommunication liberalisation, and finds:
- Telephone followed by face-to-face communication, referral to local leader, village information centre, radio, and newspapers are the most preferred medium of information and communication flow throughout Vanuatu. While there are considerable differences across rural and urban areas, telephone is the preferred means of communicating in both areas.
- Telephone is valued most in communicating for social information, emergencies, and education, but has not been able to supplant face-to-face communication in business activity. Radio is used most widely for news and weather updates.
- Widespread access to telephone has reduced the use of letters and telephone radio in general and in rural areas in particular, but has made little difference on referral to local leaders, face-to-face communication, and use of newspapers.

Case study: small and medium enterprises and telecommunications

The liberalisation of the telecommunication sector and the advent of competition in the telecommunication market are significantly increasing access to telecommunications. This is in turn affecting the value chain of these businesses, both incrementally and transformationally. Access to telecommunications is reducing the cost of doing business (incremental benefits) and expanding business opportunities across these enterprises (transformational benefits).

Case study: gender and telecoms

Men are more likely to own mobile telephone than women are in both rural and urban areas. There are also gender disparities in ownership of mobile telephone amongst women. Women's ownership of mobile telephone is shaped by their relative influence in the intra-household decision making processes. Analysis of men and women's attitudes and concerns towards telephony reflects different priorities and concerns that lie behind the use of telecommunication services by women and men. Many of these reflect differences in gender roles and responsibilities, and also suggests gender cross cuts with other social relations to define men and women's experiences with greater access to telecommunication services.

Case study: rural - urban linkages and telecoms

The research findings demonstrate that households in Vanuatu are 'stretched' between rural areas and urban areas and increasingly between rural areas and overseas. Migration is becoming an essential component of household livelihoods in rural areas. Telecommunication liberalisation and greater access to telecommunication services is playing a critical role in 'managing distance' between rural and urban households, and facilitating the redistribution of resources to rural households.

Recommendations

The research has demonstrated that telecommunication liberalisation and advent of competition in the telecommunication market is increasing access to mobile telephony, reducing the 'digital divide' between rural and urban areas, increasing access to telecommunications for women, leading to transformational and incremental benefits to small and medium businesses, facilitating the redistribution of resources to rural areas and more. Nevertheless, it also points to lack of affordability, limited productive uses of telecommunications, lack of complementing infrastructure as key concerns for the further exploitation of the benefits of telecommunications use in the country. Additionally, policy makers, private sector, and other interested parties need to consider options for reducing gender inequalities in access to telecommunications and facilitating the transfer of resources to rural areas to capitalise on the benefits of improved access to telecommunications.

Recommendation 1: Investigate private sector initiatives together with public-private partnerships to address issues of affordability, drawing on examples from other countries.

Recommendation 2: Improve complementary infrastructure to fully realise the benefits of increased access to telecommunications, including roads, shipping and electricity.

Recommendation 3: Disseminate examples of how mobile telephony can benefit small and medium enterprise development.

Recommendation 4: Target women with information campaigns to encourage use and better understanding of mobile telephony to assist in mitigating gender inequalities in access to telecommunication services.

***Recommendation 5: Carry out further research to investigate how mobile telecommunications can facilitate the* redistribution of resources to rural areas.**

Recommendation 6: Update this research project in twelve months time to confirm findings and track any changes.

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Appendix 1: Household Survey Questionnaire (English)

Social and economic impact of introducing telecommunications throughout Vanuatu

Research Findings Report
November, 2008

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Appendix 1 - Questionnaire (English)

(To be filled by the data entry person before entering the data of this questionnaire)

Entry number: ☐

GENERAL SURVEY DATA (Fill in questions 1 – 10 prior to starting the interview)

1) Date of interview: _____

2) Name of interviewer: _____

3) Name of Supervisor: _____

4) Name of village: _____

5) Name of area: _____

6) Level of telephone service coverage. ***(Tick the appropriate box)***

- a) _____
- Low –fixed line ☐
- *(1)*

- Medium - fixed line + 1 mobile service provider ☐
- *(2)*

b) If fixed line only, how far is your nearest fixed line?

- ***(Enter number in box)***

☐

7) Access to electricity?

- ***(Tick appropriate box)***

None (1)	*Occasional (2)*	*Constant (3)*
☐	☐	☐

8) What source of power do you have?

- ***(Tick appropriate box)***

Diesel *(1)* ☐

Generator *(2)* ☐

Solar *(3)* ☐

Wind turbine	*(4)*	☐
Battery	*(5)*	☐
None	*(6)*	☐
Other	*(7)*	☐

9) Type of road

- ***(Tick appropriate box)***
-

Tar sealed	*(1)*	☐
Tar sealed with holes	*(2)*	☐
Compact coral	*(3)*	☐
Dirt track	*(4)*	☐

10) Distance to main market centre?

- ***(Write in distance to principle market for the villages)***
-

Kilometers ☐

HOUSEHOLD

11) Name of respondent: _____

12) Relationship to the head of household
- ***(Observe and tick appropriate box)***
-

Head of household *(1)*	☐	Specify gender (male or female of head of household: _____
Spouse *(2)*	☐	
Others *(3)*	☐	

Specify: _____
_____

13) Approximate age of respondent
- ***(write in age of respondent)***
-

Age of respondent	☐

14) Gender of respondent
- ***(Observe and tick appropriate box)***
-

Male *(1)*	☐
Female *(2)*	☐

15) What is the highest level of education that you achieved?
- ***(Tick only one box indicating the highest level of education mentioned)***
-

No formal schooling *(1)*	*(1)*	☐	
Primary school (classes 1 – 8) *(2)*	*(2)*	☐	Specify _____
Secondary school (classes 9 – 12)	*(3)*	☐	Specify _____
Tertiary (university)	*(4)*	☐	Specify _____

Technical/Training Centre *(5)* ☐

Ask question 16 only if they have had no formal schooling

16)Do you know how to read and write?

- ***(Tick only one box)***

(a)

Yes *(1)* ☐

No *(2)* ☐

17)What language can you read and write in?

- ***(Tick appropriate box(es))***

(b) **Language**

Bislama	(1)	☐
English	(2)	☐
French	(3)	☐
Others	(4)	☐

Specify:

_____

18) How many people are living regularly in your household? (not short time visitors)

- ***(Write in the number of each age group actually living in the household)***
-

Children < 18 ☐

Adults (18 and over) ☐

19) How many of these are:

- ***(Write in the numbers of each)***

Dependent on you for financial support ☐

Supporting you in cash or kind ☐

20) Do members of your immediate family live in other villages and towns in Vanuatu (parents, siblings, children)?

- ***(Tick only one box)***

•

Yes *(1)* ☐

No *(2)* ☐

21) Do members of your immediate family live abroad (parents, siblings, children)?

• ***(Tick only one box)***

Yes *(1)* ☐

No *(2)* ☐

22) Could you indicate if the following issues have got better or worse over the past two years.

• ***(Enter appropriate code for each issue)***

CODE: 1 = Much worse; 2 = Worse; 3 = No change; 4 = Better; 5 = Much better

The health of your family members	*(a)*	☐
Education opportunities for your children (0 if no children)	*(b)*	☐
Your own level of knowledge and education	*(c)*	☐
General security in your neighborhood	*(d)*	☐
Your household income	*(e)*	☐
Support from family members living elsewhere	*(f)*	☐
Relationships with family members	*(g)*	☐
Relationships with your friends	*(h)*	☐
Quality of government services (ie. accessibility)	*(i)*	☐
Access to telecommunication changed	*(j)*	☐

23) Has your need to travel increased or reduced in the last 2 years for social, health, education, and economic purposes?

• ***(Enter appropriate code in box)***

CODE: 1 = Greatly reduced; 2 = Reduced; 3 = No change; 4 = Increased; 5 = Greatly increased

ECONOMIC

24) What are your household's principal sources of income in order of importance?

- ***(Write in the types of occupation and approximate income earned from each. In the last column use code below)***
- ***CODE (a): 1 = Refusal to give information; 2 = Do not know***

Type of occupation	Monthly income	How many months in a year	Refusal / not know *(enter code (a) above)*
Paid work (what work)	Vt		
Self employed (what business)	Vt		
Agriculture (which products)	Vt		
Fishing (what type)	Vt		
Others	Vt		

Codes to use if respondent does not know exact figure (vt)
1 = < 10,000 vt
2 = 10,000vt – 20,000vt
3 = 20,000vt – 30,000vt
4 = 30,000vt – 50,000vt
5 = 50,000vt = 70,000vt
6 = 70,000vt = 100,000vt
7 = >100,000vt

Specify: _____

25) Which category best describes your house?

- ***(Tick only one of the following boxes for each element)***

Traditional house ☐

Makeshift house ☐

Traditional house with some permanent housing materials ☐

Permanent house ☐

Flat	
Room	
Others	

Specify: _____

26) Does your household have the following?

- ***(Circle the right answer)***

Protected water (own meter, stand pipe, shared facilities)	Yes *(1)*	No *(2)*
Electricity	Yes *(1)*	No *(2)*
Fixed phone (line)	Yes *(1)*	No *(2)*
Television	Yes *(1)*	No *(2)*
Fridge	Yes *(1)*	No *(2)*
Radio	Yes *(1)*	No *(2)*
Computer	Yes *(1)*	No *(2)*

27) How many of those sleeping and eating in your household have mobile phones?

- ***(Note number in box)***
-

Number of mobile phones in house	

If DO NOT HAVE MOBLIE in house hold skip to question 29

28)Which household members sleeping and eating in your house own mobiles?

- ***(Indicate by relationship to head of household of those currently living in the household – but no passing visitors, e.g. head of household, spouse, son, granddaughter, son-in-law etc.)***

a) _____

b) _____

c) _____

d) _____

29) (a) What, if any, type of material support do you receive from family members living elsewhere in the last year?

- ***(Read options and tick appropriate boxes)***
-

		Yes or No	**How many times a year**
No support received	*(1)*		
Money	*(2)*		
Clothes	*(3)*		
Food	*(4)*		
Mobile Phones			
Others	*(5)*		

Specify: _____

(b) In the last 12 months, how have the following events influenced the above? ***(Read options and tick appropriate boxes)***

Weddings

Funeral

Reconciliation

Custom events

Others

Specify: _____

If NO SUPPORT RECEIVED skip to question 31

30) To what extent is your household dependent on support from family members living elsewhere?

- ***(Read options and tick appropriate boxes)***
-

Not at all *(1)*	Slight *(2)*	Moderate *(3)*	High *(3)*

31) How many of the following livestock do you own?

- ***(Read options and enter number in the appropriate box for each type of livestock)***
-

	Quantity
Cattle	
Pigs	
Goats	
Poultry	
Others	

Specify ----------

32) Which of the following does your household own?

- ***(Read options and tick appropriate boxes)***
-

Bicycle	*(1)*	
Motorbike / scooter	*(2)*	
Tractor	*(3)*	
Truck	*(4)*	
Small truck (car)	*(5)*	

33) Do other families share this house?

- ***(Tick appropriate box)***
-

Yes	*(1)*	
No	*(2)*	

34) Do you pay rent?

(Tick the appropriate box)

Yes	(1)		Specify, if possible, how much cash or in kind (e.g. labor) _____
No	(2)		

35) Who owns the house you live in?
(Tick the appropriate box)

Household member	(1)	☐
Relative	(2)	☐
Traditional / custom owner	(3)	☐
Church	(4)	☐
Government	(5)	☐
Others	(6)	☐

Specify: _____

36) Who owns the land you live on?
(Tick the appropriate box)

Household member	(1)	☐
Relative	(2)	☐
Traditional / custom owner	(3)	☐
Church	(4)	☐
Government	(5)	☐
Others	(6)	☐

Specify: _____

37) Are you a member of a self-help group, e.g. producer group, co-operative, self-help organization etc.

- ***(Circle Answer)***
-

Yes	No
(1)	*(2)*

If NO skip to question 41

38)What is the size of your group? _____ (Number of members)

39)What is the purpose of your group? _____

40)What are the main means of communication of the group:

Among the members? _____

With outsiders (e.g. customer and those who provide support)?
_____

With suppliers of input, goods, etc _____

COMMUNICATION PREFERENCES AND MEANS

41) How important are the following ways of communicating for you in general?

- ***(1 = Not applicable; 2 = unimportant; 3 = no opinion; 4 = important; 5 = very important)***

Face to face contact	☐
Local leaders e.g. church	☐
Radio	☐
TV	☐
Newspaper/newsletter	☐
Adverts	☐
Village information centre	☐
Phone	☐
Internet	☐
SMS	☐
Letters	☐

42) How do you communicate for the following purposes?

- ***(1 = Face to face; 2 = Local leader e.g. church; 3 = Radio and radio telephone; 4 = TV; 5 = Newspaper/newsletter; 6 = Adverts; 7 = Village information centre; 8 = Phone; 9 = Internet; 10 = SMS; 11 = Letters)***

(Read options and write in code that represents the respondent's opinion for each issue)

		Methods of communication *(enter code)*
Farming and business information	(a)	
Social information (e.g. family, friends and social events)	(b)	
Emergencies (e.g. cyclone, illness)	(c)	
Government services (e.g. agricultural and fishery extension officers, vets)	(d)	
Civil Society Organizations (e.g. NGOs, self-help group, producer group)		
Education	(e)	
Weather	(f)	
News (local and international)	(g)	

ACCESS AND USE OF Telecommunications

43) Which of the following information and communication services do you have access to?

- ***(Read list and tick corresponding box if they have access)***
-

Radio	(a)	
TV	(b)	
Fax	(c)	
Public fixed line	(d)	

Mobile phone	(e)	
Text Message (SMS)	(f)	
Private fixed line phone	(g)	
Email / Internet	(h)	
Computer	(i)	

44) How often have you used them in the last year?

- ***(Read list and indicate level of use in the corresponding boxes)***
-

Code 1 = not used; 2 = less than once a month; 3 =more than once a month; 4 = weekly; 5 =daily

Radio (and Radio telephone)	(a)	
TV	(b)	
Fax	(c)	
Public telephone	(d)	
Mobile phone	(e)	
Text message (SMS)	(f)	
Private fixed line phone	(g)	
Email / Internet	(h)	
Computer	(i)	

Ask the following question only if the respondents indicated that they are using a mobile phone

45) Out of the last 10 times that you used a mobile phone, how did you use it?

Call back	

SMS (Text messages)	
Calls	

Use of phone (mobile, fixed line and public access)

46) When did you or a member of your household first acquire a mobile phone?
- ***(Tick appropriate box)***

More than 2 years ago	*(1)*	
Two years ago	*(2)*	
During last year	*(3)*	
Do not own a mobile	*(4)*	

If DO NOT OWN MOBILE skip to question 48

47) If you own a mobile, which service provider do you use?
(Tick the appropriate box)

TVL	*(1)*	
Digicel	*(2)*	

48) If you do not have your own mobile, how do you communicate by mobile phone?
- ***(Tick appropriate box)***
-

Borrow a phone and use it for free	*(1)*	
Rent a phone (ie. pay for refill card)	*(2)*	
Do not use mobile phone	*(3)*	

49) If you use a mobile which is not yours, how much do you pay each time for the following?
- ***(Write in average amount in appropriate boxes)***

50) How frequently do you use the phone?

- ***(Tick appropriate box re previous use of private or public phones)***
-

	Never used (1)	*Monthly (2)*	*Weekly (3)*	*Daily (4)*
Private fixed phone				
Public fixed line				
Mobile				

51) How much do you spend on phone use per month?

- ***(Tick one box in each column)***

		Do Not Use	Less than 500/month	500 – 1000/ month	More than 1000/month
Private Fixed Line	*(1)*				
Public Fixed Line	*(2)*				
Mobile	*(3)*				

52) What do you mostly use a mobile or a fixed phone for?

		Business	Communication with friends and family	Emergencies
Private Fixed Line	*(1)*			
Public fixed line	*(2)*			
Mobile	*(3)*			

IMPACT OF PHONE USE

Ask the following questions only if respondent currently uses a phone.

53) Indicate the extent to which use of phones has influenced each if the following benefits for you over the last 2 years?

- ***(Read item and then tick appropriate box)***

	Not applicable	No influence	Influence	Large influence
Ask Businesses only				
New clients				
Better market prices				
Reduced costs				
Increased sales				
Transport and Logistics (e.g. getting goods to the market)				
Ask ALL Respondents				
Increased social support from family				
Increased financial support from family				
Saving on traveling time				
Reduced cost of travel				
Ability to check on availability of products before travel				
Increased speed of communication – get immediate answer compared to letters or even land line				
Less time needed to make business arrangements e.g. delivery of produce				
Communication with Government dept's.				
More frequent contacts with friends and relatives				
Help quickly in cases of emergencies (e.g. illness, cyclone)				

Information regarding schools and colleges				
Legal requirements				
Better coordination with other group members (in e.g. self-help group, cooperative)				
Better access to family health				
Improved information regarding deaths, marriages, births and future events				

Ask farmers and fishermen only

Information about crop management				
Information about the changes in the tides				
Information about livestock management				
Information about new products and their use and application				
Availability of professional staff – vets, para-vets, doctors, nurses etc.				
Increased awareness of legal rights, e.g. re water and land				

54) If you were unable to use a phone anymore, how would this impact your economic activities?
(Tick only one box)

Would not be able to continue	*(1)*	
Would continue but with difficulty	*(2)*	
No opinion	*(3)*	

No difference *(4)* ☐

55) Has the use of other means of communication changed since you started using a phone?
(Read issue and tick only one box regarding each issue)

	Large reduction *(1)*	Small reduction *(2)*	No change *(3)*	Slight increase *(4)*	Large increase *(5)*
(a) Use of letters and post office	☐	☐	☐	☐	☐
(b) Face to face communication	☐	☐	☐	☐	☐
(c) Use of newspaper	☐	☐	☐	☐	☐
(d) Referral to village council/local leaders	☐	☐	☐	☐	☐
(e) Use of Radio telephone					

(Ask question 56 only if respondent does not have a phone)

56) If you do not have a phone now, how likely are you to own one in the next year?
(Tick only one box)

Unlikely *(1)* ☐

No opinion *(2)* ☐

Likely *(3)* ☐

Very likely *(4)* ☐

57) If answer for question 56 is *unlikely*, why?
(Tick appropriate box)

Too expensive *(1)* ☐

Telecommunication company will not place fixed line *(2)* ☐

No mobile coverage *(3)* ☐

Share with family / friends *(4)* ☐

Don't like mobile	*(5)*	☐
Other	*(6)*	☐

Specify: _____

58) If you expect to buy or use a phone in the near future, how helpful do you expect the phone will be?

- ***(Read item and then place appropriate box and indicate reason for response it positive)***

Code 1 = Unhelpful; 2 = No opinion; 3 = Helpful; 4 = Very helpful

For economic activities	*(a)*	☐	If helpful, how? _____
For social communication	*(b)*	☐	If helpful, how? _____
For knowledge	*(c)*	☐	If helpful, how? _____