



**The Republic of Vanuatu**

# **The First Survey of ICT Usage in the Vanuatu Schools**

**Undertaken by the:**

**Prime Minister's Office, Office of the Government Chief Information Officer  
Ministry of Education  
Telecommunications and Radiocommunications Regulator**

**May 2013**

The sections of this report are:

- Executive Summary
- Authors and Acknowledgements
- Background
- Methodology
- Research Questions
- Answers to the Research Questions
- Discussion with Officials
- Comparative Data
- Policy Conclusions
- Future Plans for Data Collection and Research
- Appendix: Survey Instruments

### **Executive Summary**

This report provides the first-ever insight into the usage of information and communications technologies (ICTs) in the Vanuatu primary and secondary schools. The report is based on a limited survey of school principals and provincial education officials, done in January 2013. The key findings of the survey are:

- There are three types of schools: those with computer labs usable by students, those with a few computers used by teachers or administrators, and those with no computers. There are no schools with computers well integrated into the classrooms. The most numerous type by far is schools with no computers. Virtually no primary schools have computer labs; all computer labs are at the secondary level.
- Over 94 percent of respondents stated that ICTs are currently given low or very low priority in the schools.
- The two leading obstacles to ICT development in the schools are poor or no electrical power, and lack of trained ICT teachers and support personnel.
- Only about 5 percent of students in the schools have access to ICTs.
- The percentage of students estimated to be computer literate is 4 percent; almost all of these are secondary school students.
- The number of students per computer across all the schools is about 205, placing Vanuatu in the 4th percentile of countries reporting to the ITU (International Telecommunication Union) on this indicator.
- The total number of computers in the schools that students have access to, is in the low hundreds, probably about 300 (three hundred). The number of children in the schools is about 61,416.

- Only about 6 percent of schools nationwide have access to the Internet. This places Vanuatu in the 14<sup>th</sup> percentile of countries reporting to the ITU on this important indicator.
- Vanuatu scores low on providing broadband to the schools, with only about 1 percent of schools enjoying this important resource. This places Vanuatu in the 3<sup>rd</sup> percentile of countries reporting to the ITU on this measure.

The key policy implications of this research are:

- Vanuatu scores low on key education ICT measures, in comparison to other countries reporting, and even in comparison with various other developing countries. Hence there is much work to be done in this area.
- The most encouraging factor is that computer literacy and ICT knowledge rises substantially in schools with computer labs (and presumably with tablets or computing devices in the (future) classrooms), up to 71% compared with close to zero in the schools with no student access to computers. Thus the planned policy of expanding the number of computer labs and the ICT-related curriculum in schools holds promise.
- ICT usage in the schools is largely confined to Port Vila and Luganville and their nearby surroundings. Increasing the usage outside these two areas, while taking into account the challenges of power and human resources (and the other various problems), should be a priority.
- The number of total computers usable by student in the schools is so low, numbering in the low hundreds, that any program that could successfully and sustainably bring in even a few hundred or a thousand tablets or computers would have a substantial national impact.

## **Acknowledgements and Authors**

This report and the survey were a joint effort of the Office of the Government Chief Information Officer (OGCIO) in the Prime Minister's Office, the Ministry of Education (MoE), and the Telecommunications and Radiocommunications Regulator (TRR).

Two of the team members who worked on this survey were funded by AusAID. AusAID's assistance and support is gratefully acknowledged.

The invaluable input of Principal Matthew Hall of the Port Vila Central School is also gratefully acknowledged. He was the first to suggest using the MoE meeting for the survey, and was key in designing the survey of provincial officers.

The author of this report and survey was Lew Toulmin, Ph.D., F.R.G.S. Contributions were also received and are gratefully acknowledged from Doreen Leona, TRR, Tomas Lamanauskas, OGCIO, and Jackson Miake, OGCIO. Doreen Leona played a key role in administering the survey to the audience of provincial officials, while Jackson Miake was crucial in administering the survey to the schoolmasters and principals.

## **Background**

The Government of Vanuatu, the Honorable Prime Minister, and the National ICT Development Committee have identified the use of ICTs (information and communications technologies) as a key enabler in increasing economic growth, government efficiency and achieving the goals of a "healthy, wealthy and educated" ni-Vanuatu population. To achieve these goals, the government has undertaken a number of major initiatives, including (among others) opening up the telecoms/ICT sector to competition, setting up an independent telecom regulator, establishing the Office of the Government Chief Information Officer (OGCIO), setting up the National ICT Development Committee (NIDC) with a goal of issuing an agreed National ICT Policy (NIP) by mid-2013, establishing the iGov Initiative in e-government, and directing government ministries and agencies to prioritize and expand the use of ICTs.

In the area of education, the OGCIO and MoE have signed a Memorandum of Understanding (MoU) focused on increasing the use of ICTs in the schools for teaching, learning and administration, and on creating community learning, information and computing centers (CLICCs) in the schools, which will be open to the local community after school hours. OGCIO, MoE and TRR are exploring a number of other initiatives, funded by the newly re-opened Universal Access Fund, which is administered by TRR.

It is anticipated that under the National ICT Policy, each ministry or sector will develop its own ICT Policy that is more detailed and fits into the overall NIP. The NIDC and the Prime Minister have designated the education area as the key "flagship" sector which will be the first to lead the way, not because this is an easy "quick win" area, but because it is clear that the needs are great, the children of Vanuatu are the future of the country, a very high percentage of the population is in school, and there is a lot of catching up to do.

Of course any policy must be grounded in facts, and an accurate assessment of situation on the ground. In the area of ICT usage in the Vanuatu schools, no facts have existed, until now. Only anecdotal evidence was present. This survey attempts to remedy that situation.

## **Methodology**

This survey was undertaken at the Ministry of Education headquarters in Port Vila on 25 January 2013. There were two target audiences, each of which was given a different survey instrument. The first audience was comprised of Provincial Education Officers (PEOs), Zone Curriculum Advisors (ZCAs) and other provincial-level education staffers who were attending a large training session in Port Vila at the MoE. This audience received a short questionnaire comprised of seven questions, which were discussed verbally in English and Bislama, and then the respondents wrote down their answers. (See the appendix for the questions.) Twenty-one (21) provincial level respondents provided information.

The second audience was comprised of headmasters and principals of primary and secondary schools who attended the same training session. They filled out a longer typed questionnaire. Survey staff were available to answer questions and clarify issues in English, French or Bislama. Thirty-five (35) instruments were received. In both groups, all potential respondents provided responses, and there were no refusals. Thus 100 percent coverage of the respondents present was achieved. Occasionally respondents failed to answer particular questions or provided contradictory information. In these rare instances the question was dropped or reasonable inference was used.

Turning to the question of representativeness and bias, it was clear that this survey was not a universal survey of all school principals and provincial education officials. Rather this was a survey which took advantage of a major event, to get an indication of the current state of ICTs in the schools. The respondents came from all six provinces and all major and some minor islands, thus making bias somewhat less likely. But the survey was not a true random sample survey, or even an “intentional sample” (one in which a specific strata is selected for intense analysis). It seems clear that schools with a higher level of resources and ease of travel to Port Vila, especially Efate-based staff, were over-represented in the sample. Schools in or close to Port Vila and Luganville were also clearly over-represented. Hence this survey should be taken as an initial indication only of the situation, not as a final analysis, when drawing conclusions or formulating policy. Attempts are made in the analysis to compensate for this over-representation. Some questions elicited a poor response rate, or confused or incomplete answers, hence some analyses are not precise.

Of necessity, the population surveyed consists of those schools under the oversight of the Ministry of Education. Purely private schools, such as international schools in Port Vila, which are not under close supervision of the MoE, were not included in the survey or in the conclusions of this study.

## **Research Questions**

The major research questions identified for this study were:

1. What types of schools emerge, in terms of ICT usage?
2. What priority is ICT given in the schools?
3. What obstacles exist to expanded usage of ICTs in the schools?
4. Which particular schools are already active in ICTs?
5. What is the penetration of ICTs in the schools?
6. What percentage of schools have Internet access?
7. What are ICTs used for in the schools?
8. What ICT skill levels exist in the schools?
9. What financial resources are involved?

### **Answers to the Research Questions**

The answers to the major research questions were as follows:

#### **1. What types of schools emerge, in terms of ICT usage?**

Three types of schools emerged, mainly via the survey of school principals and headmasters. These were:

Schools with a computer lab. These were 13 of the 35 schools (37.1%), and were typically secondary schools or at least combined secondary and primary schools. There were no purely primary schools. Importantly, 10 of these 13 were in Port Vila or Luganville or within 20 kms of those two towns. The computer labs ranged in size from 2 to 30 computers, virtually all of them desktops. No tablets were in evidence. The average size of the labs was about 10 desktop computers. (Note that it is assumed that respondents meant that all computers in each lab were working; this may not be the case.) Typically these computer labs were connected to the Internet, although at least one and possibly several were not. (Unclear or missing responses caused this uncertainty.) Most of the schools in this group were provided with 24 hour-a-day power by Unelco, but 3 of 13 were on generator or solar power, from 7 to 15 hours per day. A few schools apparently have their “computer lab” in the school library.

Schools with no computer lab, but with a few computers used by teachers or administrators and not by students. . This type constituted 13 of the 35 surveyed schools (37.1%), and none were near Port Vila or Luganville. Most were on smaller islands, although two were on Efate or Santo, but more remote from the cities. These schools had generally 1 to a maximum of 8 computers, with an average of 3, with a mixture of desktops and laptops, and no tablets. Only two of these schools were connected to the Internet. These schools generally ran on generator power from 1 to 5 hours per day. Only 1 of the 13 schools in this group reported having Unelco power. Several schools also had some solar power.

Schools with no computers at all. These constituted 9 of the 35 surveyed schools (25.7%). These schools were generally rural, on smaller islands, and were more likely to be primary schools. These

schools generally operated on generator power for 2-4 hours per day, and occasionally had solar power.

Importantly, no schools surveyed reported using computers of any kind in the actual classrooms. The only time students have access to computers, if at all, is in the computer lab, if one exists. Thus computers and ICTs are not integrated into the teaching and normal classroom experience, in any public schools in Vanuatu, according to the survey.

Since the survey, it has been learned that the Central School in Port Vila has just recently begun integrating computing devices into some classrooms in a limited number of subjects, especially music. Thus this is apparently the only instance of computer/ICT usage in the actual classrooms (as opposed to in a separate computer lab).

Note that that the percentages given above (e.g., 37.1 percent of schools surveyed have computer labs) are **extremely** misleading, due to bias in the sample. Later questions will give a better (and much lower) estimate of penetration of ICTs in the schools nationwide.

## 2. What priority is ICT given in the schools?

This question is addressed by question 3 in the survey of the provincial-level officials, which asked:

How would you rate the priority given to ICTs in the schools, in your geographic area?

Very hi (5) Hi (4) Medium (3) Low (2) Very low (1)

Recorded scores were:

Very high (5):	no responses	0.0%
High (4):	1 response	5.6%
Medium (3):	no responses	0.0%
Low (2):	4 responses	22.2%
Very low (1):	<u>13</u> responses	<u>72.2%</u>
TOTAL :	18 responses	100.0%

Two respondents did not understand the question and stated that the need for ICTs in the schools was very high. One respondent did not provide an answer.

Recall that although the number of respondents is low, they do cover all six provinces and thus provide an overview of the entire country. When the “low” and “very low” figures are added, the result is that 94.4% feel that ICTs are given at least low or very low priority in the schools.

### 3. What obstacles exist to expanded usage of ICTs in the schools?

This item is answered by question 7 addressed to provincial-level officials, which asked:

What are the main obstacles to increased ICT usage in the schools in teaching, in your [geographic] area?

No limit was placed on the number of obstacles that respondents could list. (Hence responses total more than 100 percent and no total is presented.) The responses in order were as follows below. The percentage of the 21 respondents who identified each item is also listed.

#### Obstacles to ICT usage in the Vanuatu schools

<u>OBSTACLES</u>	# of Responses	
	<u>of 21</u>	<u>% of Resps.</u>
Problems with electrical power:	16	76.2
Lack of training or computer literacy of teachers, HR issues:	15	71.4
Lack of Internet access/coverage:	10	47.6
Lack of finances, including sustainability:	10	47.6
Maintenance issues:	6	28.6
Remoteness of the locations:	5	23.5
Don't have any computers:	4	19.0
Lack of awareness or initiatives from higher up:	2	9.5
Lack of information:	1	4.8
No negotiation:	1	4.8
Second-hand computers:	1	4.8
Block porn websites:	1	4.8
Need improved ICT room accommodation:	1	4.8
Unreliable Internet connections:	1	4.8

### 4. Which particular schools are already active in ICTs?

The list below provides information from the two survey instruments, specifically from the question for provincial officials on “what are the 1-2 best schools in your area in terms of ICT usage for teaching in the schools?” and from the survey of principals, which identified a few other schools with computer labs or other ICT activities. These schools still have many challenges, but may be targets for increased development and use as “role models” for the many other schools with little activity.



**LIST OF THE  
“1-2 BEST SCHOOLS IN EACH AREA IN TERMS OF ICT USAGE”  
PLUS ANECDOTAL DATA FROM SCHOOL LEVEL SURVEY**

**MALAKULA**

- College de Norsup, Malakula (2 responses) (13 computers in computer lab, with dial-up Internet connection, open 2 hours/day; 24 hour power from Unelco; 204 students and 14 teachers with basic computer literacy; 200,000 Vatu spent last year on ICTs, all on maintenance)
- Lakatoro Junior Secondary School (2 responses)
- Rensarie School, Malakula (2 responses)

**TANNA**

- Isangel College, Tanna (12 computers in computer lab, all Internet connected, + 2 admin computers; 24-hour power from Unelco; 1 non-working mobile phone; 200 students have received a course in ICTs in the last year and have basic computer literacy; 6 teachers with basic computer literacy, 1 volunteer IT teacher)
- Lenakel Primary School, Tanna
- Loukatai Primary School, Tanna

**ESPIRITU SANTO (outside Luganville)**

- Matevulu College, Santo (8 computers in computer lab, but none connected to Internet; 24 hour power from Unelco, 100 students and 31 teachers with basic computer literacy)
- Aucun School, Espiritu Santo

**LUGANVILLE**

- Santo East Primary and Secondary, Luganville (15 computers in computer lab; all connected with ADSL to Internet; 24 hour Unelco power; 17 teachers but reportedly zero students with basic computer literacy; 3 M Vatu spent on ICTs last year, of which 2 M was for hardware, and all came from school fees)
- College de Luganville, Santo (8 computers in computer lab, ADSL connection; 24 hour Unelco power; one IT volunteer teacher; 200 students and 29 teachers with basic computer literacy; 1.2 M Vatu spent last year on ICTs, of which 70% was on hardware and 55% came from school fees)
- Sarakata Center School, Santo
- St. Michel H.S., Santo

**AMBAE**

- St. Patrick College, east Ambae (2 responses)

## **PENTECOST**

- Ranwadi Church of Christ College, Lonorore, SW Pentecost, (2 responses)

## **TORRES**

- Arep Primary and Secondary School, Sola, Vanualava (4 computers in computer lab; 15 hours/day of power from solar and generator; 10 students and 12 teachers with basic computer literacy; 145,000 Vatu spent on ICTs last year, 59% from school fees and 30% from MoE)

## **EFATE (outside Port Vila)**

- Ulei Junior Secondary School, NW Efate (2 computers in computer lab, which is open 2 hours/day; generator power 7 hours/day; 60 students and 10 teachers with basic computer literacy; ICT course 4 days a week; 1.3 M Vatu spent last year on ICTs, of which 90% came from school fees and 10% from business)
- Onesua Presbyterian College, Efate (28 computers in computer lab; 10.5 hours/day with power from generators and solar; 1 dedicated, paid, local IT teacher)
- Nofo School, Emae (north side of Efate)

## **PORT VILA (the capital and largest town)**

- Freshwater School, Port Vila (2 computers in library and 2 in staff room, 4 computers connected to the Internet; 1 dedicated, paid, local IT personnel, 500 students with basic computer literacy, 29 teachers with basic computer literacy)
- Lycee LAB, Port Vila (30 computers in computer lab, all Internet connected; 24 hour power; 761 students and 48 teachers with basic computer literacy; 1 hour per week class in ICT usage; ICTs a major tool in history and geography classes; EDT/Pronote French software in use; 2.3 M Vatu spent last year on ICTs)
- Montmartre College, Port Vila (10 computers in computer lab, all with 512k Internet connection; 24 hour Unelco power; 1 dedicated, paid, local IT teacher; 54% of students received an ICT course last year and have basic computer literacy; 80% of teachers have basic computer literacy; 1.1 M Vatu spent on ICTs last year, about half on hardware)
- Ecole Publique Centre Ville, Port Vila (8 computers in computer lab, all connected to the Internet; 24 hour Unelco power; 200 of 630 students and 14 of 27 teachers have basic computer literacy; 1 dedicated, paid, local IT personnel; 14 of 27 teachers require use of ICTs in doing homework; 1.5 M Vatu spent last year on ICTs, of which one third was on ICT instruction)
- Central School, Port Vila
- Malapola College, Port Vila
- NTM (Neil Thomas Ministry) school, Port Vila

## 5. What is the penetration of ICTs in the schools (for use in teaching)?

This basic question is difficult to answer, given that there is clear over-representation in the principals' survey among schools in or near Port Vila and Luganville, and these schools are much more likely to have computers and computer labs, and use ICTs. The best way to get a good indication of the answer is to consider the responses of the first group of respondents, the Provincial Education Officers (PEOs) or Assistant PEOs to this question:

Question 1: What is the percentage of schools in your area [province, in this instance] using ICTs in the classroom or in a computer lab?

The responses by province are provided below, along with the number of students in each province and the estimated number of students with access to ICTs in the schools for use in teaching, projects and related.

### Estimated % of schools and students with access to ICTs

<u>PROVINCE</u>	<u>% OF SCHOOLS</u>	<u>TOTAL STUDENTS*</u>	<u># STU. W/ ICT ACCESS</u>
Malampa	5%	9,546	477
Shefa	5%**	18,325	916
Torba	0%	2,218	0
Sanma	10%	12,360	1,236
Penama	3%	7,980	239
Tafea	3%	9,987	300
<b>TOTAL</b>		<b>61,416</b>	<b>3,168</b>

\* These figures obtained from the MoE *Annual Statistical Report 2010-11*, which draws on the VEMIS (Vanuatu Education Management Information System). Figures reflect primary and secondary but not kindergarten or other students.

\*\*The respondent for Shefa Province stated "5% or less" – 5% is used here.

Note: it seems odd that the capital Shefa Province would have a lower percentage than Sanma Province, but those are the reported estimates. It seems likely that Sanma is actually lower than 10 percent. Note also that this calculation assumes that percent of schools with ICTs is evenly distributed across the student population in each province, and this multiplication is valid.

The key results of this analysis are as follows:

- Between zero and 10 percent of schools have access to ICTs, depending on the province
- About 5.2% of students (3,168/61,416) nationwide have access to ICTs in the schools (all via computer labs or computers in school libraries, since it is clear that virtually no schools have computers in the classrooms). (Note that just because a student has access to a computer lab does not mean that she/he is computer literate. That issue will be analyzed below.)

Of course, this result gives no indication of results by age or grade of student. But given that no computer labs were found in the survey in primary schools, it seems very likely that the vast

majority of those 5.2 percent of students who have access to ICTs in their schools, are secondary students.

## 6. What percentage of schools have Internet access?

Similarly, this question can be addressed using the PEO’s response to their question number 2:

Question 2: What is the percentage of schools in your area [province, in this instance] that have access to the Internet?

The responses by province are provided below, along with the number of schools and the overall estimated penetration.

### Estimated % of schools with access to the Internet

<u>PROVINCE</u>	<u>% OF SCHOOLS</u>	<u>TOTAL SCHOOLS*</u>	<u>EST. # SCHOOLS W/ INTERNET</u>
Malampa	2%	104	2
Shefa	6%**	106	6
Torba	2%	28	1
Sanma	15%	113	17
Penama	1%	75	1
Tafea	5%	88	4
<b>TOTAL</b>		<b>514</b>	<b>31</b>

\* These figures obtained from the MoE *Annual Statistical Report 2010-11*, which draws on the VEMIS (Vanuatu Education Management Information System). Figures reflect primary and secondary but not kindergarten or other schools.

\*\*The respondent for Shefa Province stated “6% or less” – 6% is used here.

Note: Again, it seems odd that the capital Shefa Province would have a lower percentage than Sanma Province, but those are the reported estimates. It seems likely that Sanma is actually lower than 15 percent. Remember that these estimates are each derived from one person’s knowledge of his/her province, and his/her guesstimate of penetration in that province.

The key result here is that about 6 percent (31/514) of schools nationwide have access to the Internet.

Recall that just because the school has access to the Internet, does not mean that the students have access to the Internet. In a number of schools teachers and administrators, but not students, have Internet access. Given that from the previous question we can estimate that about 5 percent of students have access to ICTs, it seems reasonable to estimate that about that same number or less have access to the Internet at their schools.

## 7. What are ICTs used for in the schools?

At the school level, 6 of the 13 schools with computer labs report having at least one course focused on ICTs as a subject in itself.

Eight of the 13 schools with a computer lab report having a substantial number of teachers using ICTs as a tool in the preparation of teaching materials.

And six of the 13 schools with computer labs report having at least some courses in which “ICTs are a major component, in terms of presentations, research or projects.”

Recall that schools with computer labs are actually a very small minority of the total schools and the total school population, so that using ICTs in material preparation or coursework is only present in a small portion of the total population, likely about 3 percent.

The provincial level officials were asked if they themselves used ICTs in their own internal office administration, and if so, what for. The answers were as follows:

- Six of 21 respondents (including one PEO) did not have a computer nor use ICTs in the office.
- Four additional respondents had computers but were not connected to the Internet, and hence used their computers essentially as typewriters, to do reports.
- The most common usages by those provincial education officials who had computers and were connected to the Internet (11 of 21), were to send emails and reports, and do research.

## **8. What ICT skill levels exist in the schools?**

Among the group of 13 responding schools which have a computer lab, there is a wide range of reported computer literacy, which is defined here as “able to turn a computer on and off, use a mouse or trackpad/ball and keyboard, write a short e-document, send an email, search the Internet, navigate the file system, and install software.” The reported rate of student computer literacy ranged from a surprising “nil” on this standard, to 100 percent. The average computer literacy among students in these schools is 71%. Among teachers, the range was between about 50 and 100 percent.

Among the group of 13 responding schools which have some computers, for the use of administrators and teachers (but not students), the percentage of students with basic computer literacy is generally zero, with only one school reporting 14 of 90 students having basic computer literacy. Teacher computer literacy is somewhat higher, with a number of schools reporting a minority of teachers who are computer literate, and one stating that all are.

Among the group of 9 responding schools which have no computer lab and no computers at all, the percentage of students and teachers with basic computer literacy is almost zero. As is made clear by the PEOs, these 9 schools are likely much more typical than the “computer lab” group.

The analysis earlier, under question number 5, suggested that about 3,168 students had access to computers in the schools, mostly via computer labs. The analysis of the present question shows that 71 percent of students in the “computer lab” strata of schools are computer literate. Therefore it is reasonable to estimate that about 2,249 students overall are computer literate (3,168 x .71). This is about 3.6 percent of the total population of 61,416 students.

As indicated earlier, it appears very likely that the percentage of computer literacy among primary school-children is very low indeed, probably almost zero, and thus the computer literacy in the secondary schools must be higher, and probably around 5 percent, thus bringing the overall average up to the 3.6 percent level (or via rounding: 4 percent).

Note that just because a student is computer-illiterate, does not mean that she/he is illiterate in terms of using all ICT devices. According to surveys by the Pacific Institute of Public Policy (PIPP), about 94.4% of households in Vanuatu have a mobile phone. Thus many youth and students are quite familiar with these devices, and use them extensively, mainly for texting other youth. Few use them for calling (which costs more), Internet access (which is generally far too expensive or not technically available on their type of device), or email.

## **9. What Financial Resources Are Involved?**

Reviewing the 13 schools in the “have a computer lab” group, the total amount reported as spent on ICTs in the last year ranged from a low of 80,000 Vatu per school to a high of 2.32 million Vatu, with an average of 1.07 million Vatu.

The most expensive item in 8 of the 13 schools was hardware, consuming about 40 to 70% of the ICT budget in those 8 schools. Maintenance was the most expensive item in 4 of the 13 schools.

The principal source of funding for ICT spending was school fees. Of the 13 schools, 7 reported that school fees were the source of 90 to 100% of the monies spent on ICTs. Three other schools reported school fees as providing 55 to 60% of the monies spent on ICTs. MoE grants were a distant second source of funding, and a very few schools mentioned foreign donations, businesses and “raised from parents” as minor sources.

The group of schools with no computers and the group with a few administrative/teacher computers generally had zero spent on ICTs (as might be expected), or had a reported amount which was sometimes related to buying or maintaining a photocopier, or other item which is not really germane.

## **Discussion with Officials**

After the survey was undertaken of provincial educational staff, a discussion was held regarding ICTs in the schools. Key points made here were:

- There is very low level of computer literacy in the schools, including among the teachers. One respondent estimated that about 10 percent of teachers can use computers for basic Microsoft Word functions. Knowledge of the Internet is low.
- One speaker suggested that to promote ICT in the schools, the first task would be to educate the head teachers. If the head teachers understand and use ICTs, they will have the initiative and passion to introduce ICT into schools.
- Another issue is that many rural schools are not in range of cell phone coverage by either major provider. Some are supposedly in range, but in fact one must walk several kilometers, to the shoreline or to a high point, to get cell phone connectivity. Respondents estimated that on some islands such as Tanna or Aneityum (Anatom), this problem affects 15 to 25 percent of the schools, and in Torba province 5 of 9 schools are without mobile coverage.
- A school principal commented that mobile internet is one of the key tools of communications between the schools, the Government and the MoE. However, he further commented that Internet on mobile phones has limited service, and that it is only possible to access emails, and attachments cannot be downloaded or read.
- Officials were asked if money would be a major issue, since the Rensarie experience seemed to show that if funding was needed and the community was united, money could be raised by selling garden produce. The educational experts responded that Rensarie was in a favored position. It may appear isolated but in fact is within 1.5 hours of a major port, with rapid access by ship and air to Port Vila and Luganville, the two main markets in the country. This is important because the produce from Rensarie will not rot before arriving at the markets. Also, Malakula is very productive in agriculture, and has good soil and rain conditions. Thus a school located on a more remote island, with infrequent sea and air connections, and thus subject to rot in its products, and/or with poorer agricultural conditions, might not be able to raise funds in the same way that Rensarie did.
- One Principal noted that limited or no reliable power/electricity at the schools is one of the major issues contributing to low uptake of ICT in schools.
- One speaker partially disagreed, and stated that the key was having staff, especially a principal, who was willing to take the initiative and make things happen. With initiatives at the school level, sustainability is guaranteed, networks with suppliers and donors are created, and partners with international schools are formed, helping with human resources and maintenance. He further commented that the ICT component is crucial to the development of schools.
- Several officers mentioned maintenance, slow delivery of spare parts, and lack of IT human resources, as major problems.
- When asked about the current VEMIS (Vanuatu Education Management Information System), no major complaints were registered, and it was described a “broad” and “useful.”

## Comparative Data

As mentioned earlier, there are no previous data on ICTs or computer literacy in the schools of Vanuatu. There is a study less than a year old from MoE which indicates that rates of “critical underachievement” in basic literacy and numeracy are quite high, as follows:

### Critical underachievement rates in literacy and numeracy among students

Anglophone literacy:	59%
Francophone literacy:	65%
Anglophone numeracy:	66%
Francophone numeracy:	61%

Source: Vanuatu Ministry of Education, *Education For All* (Port Vila: MoE, July 2012), p. 18.

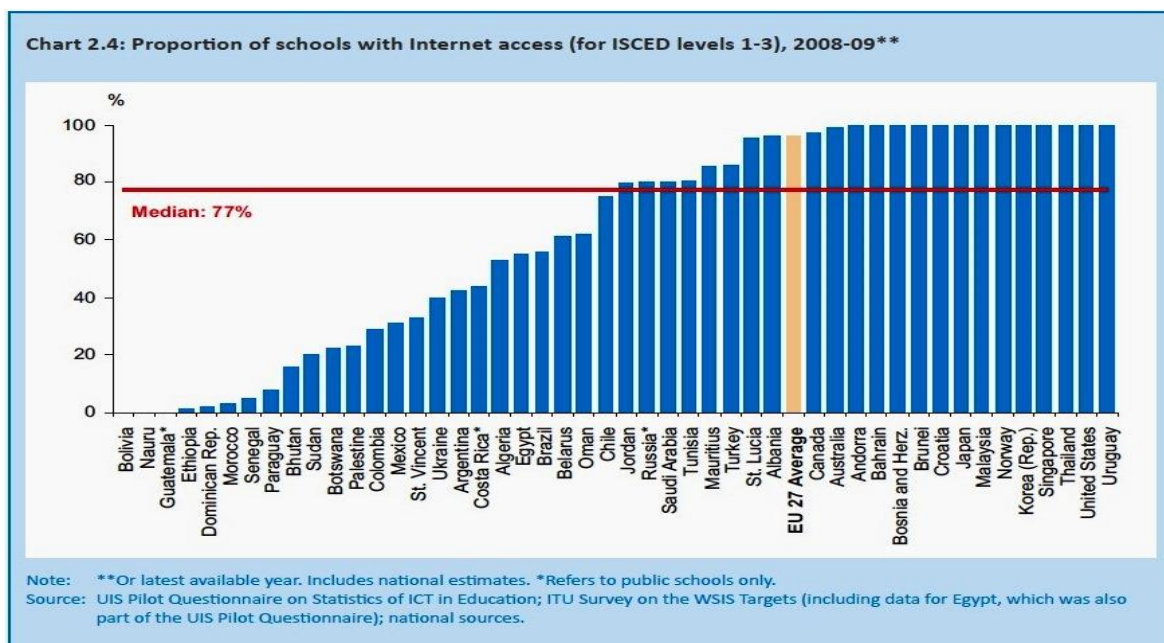
With such problematic rates in basic literacy and numeracy, the low estimated rate here of around four percent computer literacy seems understandable.

The UNICEF report *Children in Vanuatu: 2011: An Atlas of Social Indicators*, states that “51% of children in Vanuatu experience severe information services deprivation,” which is defined as “no access to radio/TV/phone.”

Turning to international comparative data, the best and most comprehensive data for international benchmarking are from the International Telecommunication Union, which published *World Telecommunication/ICT Development Report 2010: Monitoring the WSIS Targets, A Mid-Term Review* (Geneva: ITU, 2010). This report provides three indicators from numerous countries around the world which are comparable to the data collected in this survey of Vanuatu. The indicators and ITU charts are presented below.

**Internet Access in the Schools.** The ITU table below shows data from 47 countries, collected in 2008-9, on the percentage of primary, lower secondary and upper secondary schools (ISCED levels 1-2-3) which have Internet access.



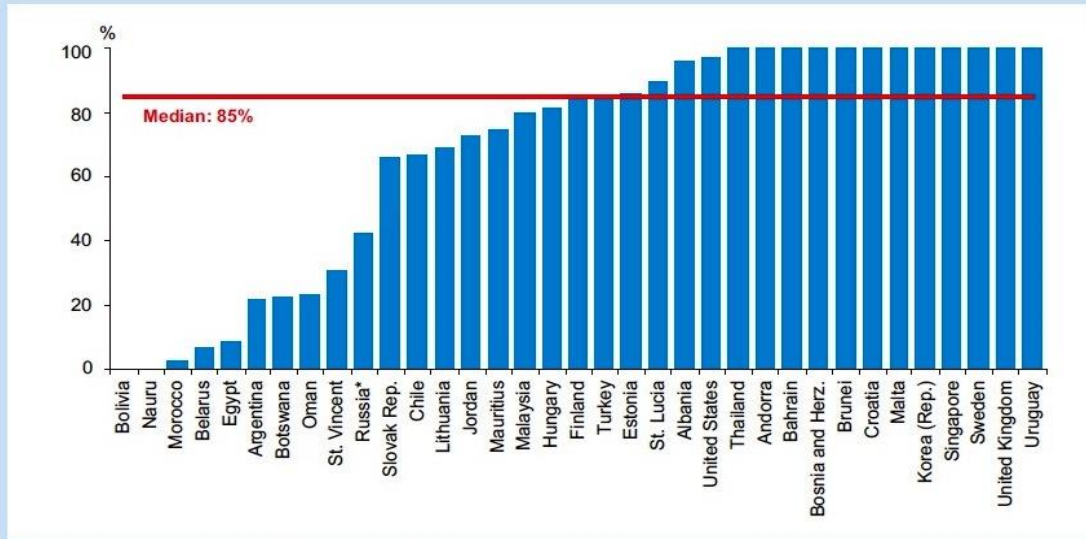


Recall that this Vanuatu survey indicates that about 6 percent of schools have Internet access. Thus on the ITU scale, Vanuatu would rank above Bolivia, Nauru, Guatemala, Ethiopia and the Dominican Republic, but about the same as Senegal, and below the other 41 countries. This would place Vanuatu in about the 14<sup>th</sup> percentile of countries reporting.

There are 196 countries on Earth, so it is not clear exactly what percentile Vanuatu would be in, if all countries reported. And it is very likely that the lowest countries also had poorest reporting rate. But Vanuatu is lower than less developed countries such as Bhutan, Sudan, Paraguay, Columbia, Botswana and Mexico.

**Broadband Internet Access.** Usable data from the survey of principals indicates that only about one eighth of Vanuatu schools with computer labs have access to the Internet with 256 kbps or higher speeds. Thus about 1 percent of Vanuatu schools or less have broadband Internet access. On the ITU chart of 35 countries reporting on this indicator, Vanuatu would rank above Bolivia and Nauru but below the other 33 countries. This would place Vanuatu in about the 3rd percentile of reporting countries.

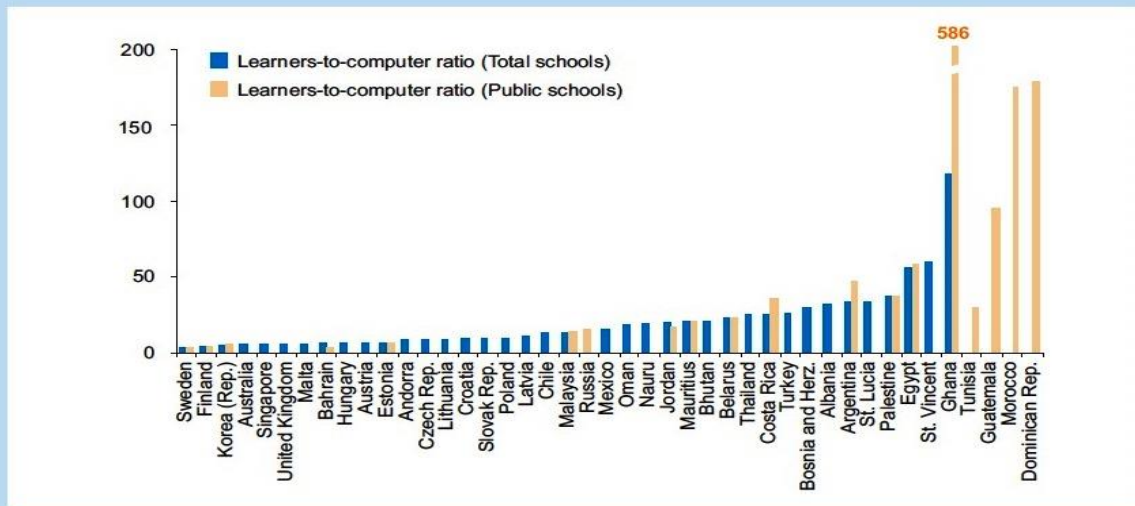
Chart 2.5: Proportion of schools with broadband Internet access (for ISCED levels 1-3), 2008-09\*\*



Note: \*\*Or latest available year. Includes national estimates. \*Refers to public schools only.  
 Source: UIS Pilot Questionnaire on Statistics of ICT in Education; ITU Survey on the WSIS Targets (including data for Egypt, which was also part of the UIS Pilot Questionnaire); national sources.

**Learner to Computer Ratio.** The ITU received data from 43 countries on the ratio of the number of learners (students) to the number of computers in the schools. The best country is Sweden, with 3 students per computer, and the worst is Ghana, with 586 students per computer.

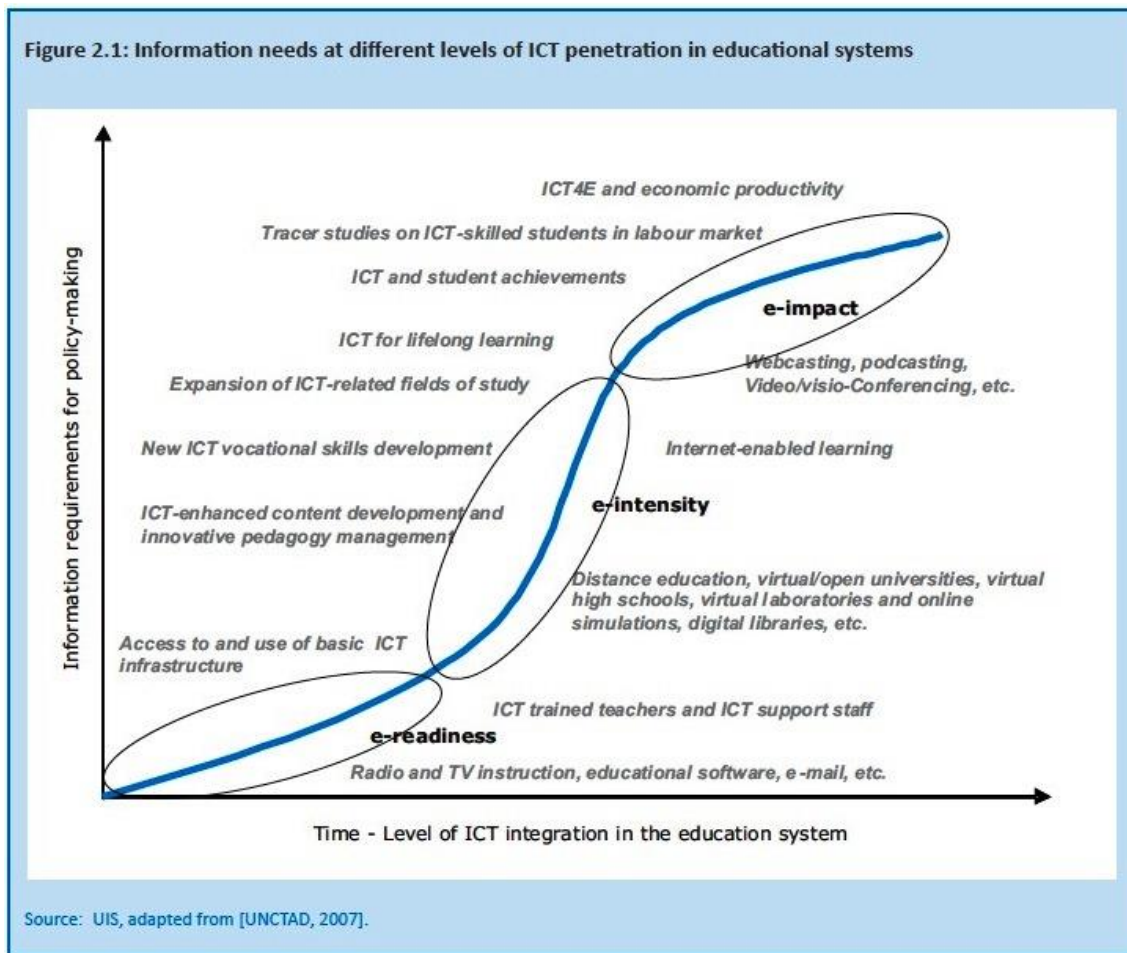
Chart 2.2: Learner-to-computers ratio (for ISCED levels 1-3), 2008-09\*



Note: \* Or latest available year. Includes estimates.  
 Source: UIS Pilot Questionnaire on Statistics of ICT in Education; ITU Survey on the WSIS Targets; national sources.

For Vanuatu, recall that the average number of computers per school computer lab is about 10. (We assume for this purpose that all these computers are working, a possibly unwarranted assumption.) There are 514 primary and secondary schools, of which about 5.2% have computer labs. Hence a rough estimate of the number of computers usable by students in the schools' computer labs is 267 (10 x 5.2% x 514). If we add in a few more for computers in school libraries, the figure would be about 300. The number of students is 61,416. Therefore the ratio of students per student-usable computer is about 205 (61,416/300). This figure is better than Ghana, but worse than the other 42 countries. This would place Vanuatu in about the 4th percentile of countries reporting.

**Theoretical Framework.** Based on its surveys of ICT usage in the schools, the ITU created a helpful adoption curve theoretical framework, which is presented below.



On this classic adoption curve, Vanuatu is still in the lower left stage, with low ICT integration in the educational system, and a need for better information on the access to and use of basic ICT infrastructure and systems. It is hoped that this report has provided at least some measure of improvement in the information available to policy-makers and the public on this important topic.

## **Policy Conclusions**

The key policy implications of this research are:

- Vanuatu scores low on key education ICT measures, in comparison to other countries reporting, and even in comparison with other developing countries. Hence there is much work to be done in this area.
- The most encouraging factor is that computer literacy and ICT knowledge rises substantially in schools with computer labs (and presumably with tablets or computing devices in the (future) classrooms), up to 71% compared with close to zero in the schools with no student access to computers. (Note that this high degree of association does not prove causality, but seems reasonable in this context.) Thus the planned policies of expanding the number of computer labs, tablets, and the ICT-related curriculum in schools, holds promise for the future.
- ICT usage in the schools is largely confined to Port Vila and Luganville and their nearby surroundings. Spreading out from these two areas, while taking into account the challenges of power and human resources (and the other various problems), should be a priority.
- The number of total computers usable by student in the schools is so low, numbering in the low hundreds, that any program that could successfully and sustainably bring in even a few hundred or a thousand tablets or computers would have a substantial national impact.

## **Future Plans for Data Collection and Research**

As mentioned in the methodology section, this survey was not a universal or sample survey. The data elements from the survey of principals and headmasters will in future be added to the annual VEMIS survey of all schools, thus creating a universal, annual data collection. This action is planned for November 2013. However, concrete analyzable results will not be available until about April 2014, and thus any detailed analytical report will probably be produced around June or July 2014.

It should also be noted that some knowledgeable actors have stated that data flows in VEMIS from the field to the provinces to the national level can be problematic, with missing, erroneous or un-entered data. It is planned that the ICT data collected in 2014 will be scrubbed and carefully reviewed for reliability and comprehensiveness.

**Appendix:**  
**Two Survey Instruments**

### **Survey of Provincial-Level Education Officials, 2013**

1. What percentage of schools in your area use ICTs in the classroom or in a computer lab?
2. What percentage of schools in your area are connected to the Internet?
3. How would you rate the priority given to ICTs in the schools, in your area?
  - a. Very hi (5) Hi (4) Medium (3) Low (2) Very low (1)
4. What are the 1-2 best schools in your area in terms of usage of ICTs in teaching?
  - a. Name: \_\_\_\_\_ Location and contact info: \_\_\_\_\_
  - b. Name: \_\_\_\_\_ Location and contact info: \_\_\_\_\_
5. Are you using ICTs (computers, Internet) in your internal office administration?
6. If yes, describe how: \_\_\_\_\_
7. What are the main obstacles to increased of ICTs in the schools in teaching, in your area?

#end survey of provincial officials#



## The Republic of Vanuatu/La République de Vanuatu

# ICT School Survey

### OBJECTIVE OF THE SURVEY

The objective of this survey is to provide to the Prime Minister's Office and the Ministry of Education with accurate, up-to-date detailed information on the use of ICTs (information and communications technologies) in the schools. This Principal's meeting provides an excellent forum to collect data directly from the people who know best what is going on.

This survey collects data about:

- Computers in School
- Internet
- ICT equipment
- Power supply
- Funding
- ICT Related Information

### ADMINISTRATION

NAME OF SCHOOL:			
SCHOOL ID NUMBER:			
Name of Respondent	Title	Contact Number	Email Address
School Location: Town or Village Name:			
Island:			
Signature:		Date:	

Thanks for your input! We appreciate it!

## SECTION A: School Computers

*This section requires information about computers in schools and their connections to internet, ability to surf on net and ability to send and receive emails.*

	Desktop Computer	Laptop	Tablet	Othes; Please specify	Total
Total Number of Computers in school					
Number of Computers in the Computer Lab					
Number of Computers in the Admin office					
Numbers of Computers in the Classrooms					
Number of Computers in the Computer Lab that are connected to Internet					
Number of Computers in the Computer Lab that have the ability to send/receive emails and surf the net					
Number of Computers in the Admin office that are connected to Internet					
Number of Computers in the Admin office that have the ability to send/receive emails and surf the net					
Number of Computers in the Classrooms that are connected to Internet					
Number of Computers in the Classrooms that have the ability to send/receive emails and surf the net					



## SECTION B: Internet Service

*NB: Please also specify if you are accessing internet on mobile phones.*

	ADSL	Wimax	Wifi	Vsat	2.5G	3G	Dial-up	Total
Total Number of Internet connection provided at the School								
Type of Internet connections at the school								
<b>Total</b>								

	128kbps	256kbps	512kbps	1Meg	Total
Total bandwidth of the internet connections at school					
Total bandwidth of the internet for the student use					
<b>Total</b>					

	TVL	Digicel	Telsat	Other; Specify
Who is the Telecom provider				

	Yes	No
Does the school has Local Area Network (LAN)		

	<i>Total</i>
Number of student projects in the last 12 months that involved collaboration with students in other schools in Vanuatu, using ICTs for communications and research?	

	<i>Total</i>
Number of student projects in the last 12 months that involved collaboration with students in <b>foreign</b> schools, using ICTs for communications and research?	

	<i>Yes</i>	<i>No</i>	<i>If Yes, Specify:</i>
Does the school offer a course in ICTs?			

## SECTION C: ICT (Information and Communications Technologies) Equipment

	<i>Total</i>
Number of Printers	
Number of Photocopy Machines	
Number of Projectors	
Numbers of Digital Cameras	
Number of Scanners	
Number of Smartboards	
Number of Telephones	
Number of Mobile Phones	
Number of radio sets in school used for education of students	
Number of TVs in school used for education of students	
Number of Fax Lines	
Number of educational software packages available for key subjects (math, language, science) in the school	

	<i>Most popular</i>	<i>2nd</i>	<i>3rd</i>
List in priority of importance the top 3 most popular educational software packages:			

## SECTION D: School Power Supply

Place a tick on the correct answer.

	Generator	Solar Power	Unelco	None	Other; Specify
What are the means of sources of power supply					

	Total
Number of Generators	
Number of Generators working	
Number of Generator not working	
Number of Solar Systems	
Number of Solar Systems working	
Numbers of Solar Systems not working	
Number of hours per day the school has power	

## SECTION E: ICT Related Information

	<i>Number</i>	<i>Percent of Total</i>
Number of dedicated, paid, local IT teachers		
Number of IT teachers - Volunteer		
Number of dedicated, paid, local IT personnel		
Numbers of IT personnel - Volunteers		
Number of teachers that are permitted to use internet		
Number of students that received a course in ICTs in the last year		
Estimated number of students that have "basic computer literacy" (defined as: "able to turn a computer on and off, use a mouse or trackpad/ball and the keyboard, write a short e-document, send an email, search the Internet, navigate the file system, and install software")		
Estimated number of teachers that have "basic computer literacy" (defined as: "able to turn a computer on and off, use a mouse or trackpad/ball and the keyboard, write a short e-document, send an email, search the Internet, navigate the file system, and install software")		
Estimated number of students that have regular access to a computer (including a tablet) at school, home or elsewhere		
Estimated number of students that have a smartphone		
If there is an ICT course at the school, how many weeks long is it?		NA
Number of teachers that use ICT in preparing for courses		
Estimated number of courses in which ICTs is a major component, in terms of presentation, research or projects		
Number of teachers that require use of ICT for preparation of homework		
Number of teachers with email addresses		
Number of hours per day that computer lab is open (outside of formal classes)		

	Yes	No
Does the school provides access to students/teachers via wireless internet		
Does the school uses electronic educational materials (ebooks, PDFs, Khan Academy etc, if yes please specify		
Does the school uses IT for administration purposes, including:		
- Communication (email and attachments)		
- Finance Management system		
- Course Management/e-Learning System (e.g., Moodle)		
- Other management systems (please specify)		
Does the school have an IT (information technology) policy		
Does the school has premises suitable for computer lab		

## SECTION F: ICT Expenditures and Revenue

	Amount (VT)
<b>Total amount in Vatu spent the last years on ICT . Fill in below:</b>	
Hardware	
Software	
Internet connection	
Maintenance	
ICT Instruction	
Other; specify	
<i>Total</i>	

	Percentage
<i>Of the total ICT expenditure what percentage of the total is from the school budget</i>	

### Revenue for ICTs

	Percentage
<b>Of the "total" amount of ICT expenditures above, what percent comes from each source below?</b>	
School fees	
Ministry of Education grant	
Raised from parents	
Given by Businesses	
Other: Specify	
<i>Total</i>	100%

#end Appendix and Report#