



Technical Assistance Consultant's Report

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Samoa: Supporting the Samoa SchoolNet and Community Access Pilot Project

Prepared by Helsinki Consulting Group in association with ANZDEC Limited and
Queensland University of Technology

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Asian Development Bank



Helsinki Consulting Group

SAMOA
SUPPORTING THE SAMOA SCHOOLNET AND
COMMUNITY ACCESS PILOT PROJECT
ADB TA No. 4305-SAM

Final Report

January 2007

Prepared for the
Ministry of Education Sports and Culture
and the
Asian Development Bank

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ABBREVIATIONS

ADB	Asian Development Bank
ADSL	Asymmetric Digital Subscriber Line
CAP	Community Access Program
CE	Communications Engineer
CLC	Community Learning Centers
CMAD	Curriculum Materials and Assessment Division
CSL	Computer Services Limited
DTL	Deputy Team Leader
EA	Executing Agency
GoS	Government of Samoa
GPRS	General Packet Radio Service
GSM	Global System for Mobile Communications
HCG	Helsinki Consulting Group
ICT	Information and Communication Technology
ISP	Internet Service Provider
ITC	International Training Consultant
LAN	Local Area Network
LO	Learning Object
MCIT	Ministry of Communication and Information Technology
MESC	Ministry of Education Sports and Culture
MoF	Ministry of Finance
NZ MoE	New Zealand Ministry of Education
TA	Technical Assistance
TL	Team Leader
TLF	The Learning Federation
VPN	Virtual Private Network
WAN	Wide Area Network



EXECUTIVE SUMMARY

1. This presents the Final Report for the Asian Development Bank (ADB) TA 4305-SAM - Supporting the Samoa SchoolNet and Community Access Pilot Project (the TA). The three key outputs for the TA are as follows:

- Demonstrating the applicability of SchoolNet and community access program approaches for Samoa;
- Implementation plans and policies for SchoolNet and community access facilities; and
- Improved teacher training curriculum and materials for distance learning.

2. The TA commenced in March 2005 and was completed in December 2006. The original timeline was extended, with the agreement of the ADB and the Executing Agency (EA), in order to complete the activities given the implementation delays. In practice, the delays have worked in favor of giving time to develop and implement a more appropriate model.

3. The EA is the Ministry of Finance (MoF) and the Implementing Agency is the Ministry of Education, Sports and Culture (MESC). The TA has been implemented with a fully consultative approach, not only with the ADB and Executing/Implementing agencies, but also with the schools and communities, teaching/training institutes such as National University of Samoa, and with local ICT specialists.

4. Key progress during the TA is as follows:

- Based on the final agreed design, to take account of the initial developments in communications infrastructure in Samoa - which gave the opportunity to fully demonstrate the potential of SchoolNet with networking and real-time information sharing - all equipment etc has been supplied and is up and running with systems operating. There are two pilot schools and the MESC connection running on wireless connectivity (in the Apia CBD), and three pilot schools running on dial-up (as better connectivity is not yet available outside the Apia CBD). Although the dial-up connectivity is not ideal, the three dial-up schools were necessary to give a more representative sample/demonstration; it brought these schools into the SchoolNet concept.
- The SchoolNet portal has been developed and is operational. The further development of the portal, including expanding and updating content, will be an ongoing requirement.
- The training program has been completed. A key issue was the shortened period within which to provide the training/mentoring (due to the equipment delays) and the lack of full engagement by CMAD; however, the training has proved extremely worthwhile - while also highlighting the need for additional training.
- Training materials were developed - the first such resources for teachers; there is an interest in making these resources available to all schools.
- Pre-intervention baseline data for teachers' ICT competencies and for the communities has been compiled. Some initial post-intervention data was compiled at the end of the TA, although the short implementation period under the TA makes this data quite limited.
- Awareness and advocacy programs have been undertaken to raise awareness of the TA initiatives and the potential for ICT in education and for the wider communities.



- SchoolNet Management model (including the Community Access Program – CAP). A framework has been developed; however only two of the pilot schools have completed their models to date.
- The TA has linked with other donors and programs.

5. Most tasks/outputs have been completed. In terms of the three key outputs for the TA:

- The applicability of SchoolNet has been clearly demonstrated; the model developed is appropriate for Samoa and can be upscaled. The CAP aspect is necessarily slower than for the schools.
- SchoolNet management guidelines have been developed; these need to be taken up by the schools/communities, and developed further as necessary.
- The systems and approaches for distance facilities have been established, but there has not been time to implement/develop this during the TA.

6. There have been a number of issues which have affected the implementation of the TA, notably:

- The time taken to identify a suitable connectivity model, due to previously restrictive/monopolistic ICT legislation.
- Initial lack of commitment from the Government of Samoa (GoS) on funding recurrent costs.
- Delays in delivery of equipment by the two suppliers, as well as teething problems in commissioning of the equipment and services.
- ICT absorption capacity and competencies. Baseline ICT competencies for teachers and communities are generally low.
- Ambitious assumptions relating to self-sufficiency in the short term.
- Lack of local capacity in ICT in general, including in MESC.

7. Key monitoring and evaluation findings from the TA are as follows:

- The model developed is good, and appropriate for Samoa.
- The connectivity and network design was monitored iteratively during the life of the TA; this will be more meaningful when done over the longer term and a framework for this is included in this Final Report.
- Expectations of the schools and communities were discussed during the early part of the TA. The importance of improved education facilities was stressed by the communities; together with expectations of access to the “basic” communications and information facilities such as email and internet.
- The schools and the communities are committed to the SchoolNet concept; this despite the delays that have occurred.
- The baseline data shows that ICT competencies for teachers and communities are low.
- Initial post-intervention data suggests that there is already an increased ICT awareness, especially with computers and the internet. However, competency is still low – this is not

surprising given the limited training which was possible. Other impacts are not clear yet, and this needs to be followed up later – initially through the current ADB RETA, then later through other programs and/or MESC.

- Some indicators from the TA design were unrealistic and are more long term in nature.
- The CAP aspect does not have to be implemented at the same pace as for the schools.

8. All activities have been completed and the TA consulting services concluded at the end of December 2006. This Final Report has been completed in January 2007. The TA consortium will complete all the outstanding financial and other administration and close-down with suppliers and the ADB/EA.

9. Lessons learned from a TA such as this (pilot demonstrations) are considered as outputs. Some of the lessons learned have been taken up during the TA and some are left as recommendations for the future. The key overall lessons learned are:

- Provision of IT equipment itself will not provide the solution to improving access to ICT in education and the wider community. A holistic or integrated approach needs to be adopted, taking account of infrastructure development, systems and procedures and capacity building – capacity building in schools, in CMAD and in local capacity in general (eg IT services).
- There needs to be a long term sustainable approach from the Government and the donors. Short term, ad hoc projects from donors working in isolation will not work. The Government, whilst showing a fair level of commitment to this TA, needs to expand this commitment, in areas such as provision of human and budgetary resources, and partnerships with the communities.

10. The project, if supported well, will significantly change the teaching learning in Samoa. The model developed by the TA is still considered to be the right way to proceed and have good potential for the long term approach for ICT in education and in the wider community, particularly given the ongoing developments in communications technology in Samoa. The pilots are up and running, including the two wireless pilot schools and the portal, where the full potential of SchoolNet can be run, and initial training has been delivered. There have been delays in completing the required outputs under the TA, but this has not changed the need for these outputs nor the success of them.

11. It would not be right for the SchoolNet success under this TA to flounder and drift away for want of continued support. The recommended approach now is for a further ADB TA which will pick up from where the TA and the ADB RETA has left off and work in tandem with the ESP II, as well as with any other donor initiatives. The recommended structure for this, and what needs to be covered, is outlined in this Final Report.

12. In the meantime, entry points where the ADB RETA and the ESP II project could support the SchoolNet are given in this Final Report.



I. BACKGROUND/OVERVIEW

1. A key objective of the information and communication technology (ICT) policy of the Government of Samoa (GoS) is to ensure access to ICT to all Samoans. Within this objective, the GoS ICT policy guideline principle #1 (human resources) states that ICT will be used to inform and connect the population of Samoa and ensure that it benefits from flexible and appropriate education, training and experiences; and guideline principle #2 (appropriate infrastructure) states that appropriate ICT infrastructure will be developed to support development for Samoa. In supporting the GoS vision the Samoa SchoolNet and Community Access Pilot Project (the TA) will help to address these objectives by enhancing the environment for poverty reduction in rural areas of Samoa by improving access to basic services through improved communications.

2. The TA is funded by the Asian Development Bank (ADB) for piloting an appropriate model for introducing ICT in schools (SchoolNet) and also seeks to extend this ICT exposure to school communities to improve their knowledge and capacity to become active and productive members of the local communities. The TA will (i) improve quality and efficiency of education; (ii) enable access to global information; (iii) enable increased sharing of information between schools and with communities; and (iv) achieve the GoS Education for All and Millennium Development Goals for education.

3. The Ministry of Finance (MoF) is the Executing Agency (EA) and the Ministry of Education Sports and Culture (MESC) is the Implementing Agency. The consulting firm implementing the TA is HCG/ANZDEC in collaboration with Queensland University of Technology.

4. The TA is designed to illustrate how cost-effective information and communication technologies made available to primary and secondary students and rural communities can (i) improve communications and access to the Internet; (ii) promote entrepreneurship through community access centers; and (iii) help improve education, health and governance. The TA will develop mechanisms to monitor overall economic, education and health improvements by establishing baseline qualitative and quantitative data for pre- and post-project evaluation on the ICT intervention.

5. The three key outputs of the TA are as follows:

- Demonstrating the applicability of SchoolNet and community access program approaches for Samoa;
- Implementation plans and policies for SchoolNet and community access facilities; and
- Improved teacher training curriculum and materials for distance learning.

6. The TA commenced in March 2005¹ and the Inception Report was submitted in June 2005, following the inception phase. The Interim Report, which was originally planned to be submitted during the latter part of 2005 (and after the installation /commissioning of the equipment at the pilot schools and Data Center), was delayed. The delays arose due to the following:

¹ A chronology of activities undertaken during the life of this TA is presented in Appendix 1.

- Identifying a suitable connectivity model;
- Agreement from the EA on meeting recurrent costs;
- Requiring tripartite agreement at each stage of the process – revised connectivity model, revised work plan, equipment procurement;
- Delivery and commissioning of equipment by the two suppliers, Datec and Computer Services Limited (CSL), which ultimately did not go ahead until July 2006.

7. The final Interim Report was submitted on 28 June 2006 taking account of the draft discussed at the tripartite meeting in Apia on 22 June 2006.

8. Between the end of June 2006 and early November 2006, the equipment installation/commissioning, the training and awareness programs, data collection and the portal development have gone ahead.

9. The Draft Final Report was submitted on 8 December taking account of the draft discussed at the final review workshop and tripartite meeting in Apia on 28 and 29 November 2006. The final review workshop was attended by the complete TA team and the TA consortium representative, with presentations being made by the TL, CE, ITC, Social Development Specialist and TA consortium representative.

10. During December 2006, the final activities took place – final training, initial post-intervention data collection and analysis, agreeing the final contractual requirements of the two equipment etc suppliers and close down activities.² This Final Report includes details of the progress of the TA, including the final activities and information, together with recommendations for the future.

II. TA ACTIVITIES AND ACHIEVEMENTS

A. Connectivity/Equipment

1. Communications Infrastructure and Quality of Service

11. At the start of the TA in March 2005, there was only one major telecommunications provider (SamoaTel) in the country. The TA negotiated with SamoaTel for the best possible option for providing an economically viable network system. The limited communications infrastructure strongly influenced the selection of pilot schools, nevertheless an attempt was made to include a mix of rural and semi-urban schools. As a result of a series of discussions held with SamoaTel, the assurance given by them and the constraints of the communications infrastructure available, the TA team developed a connectivity model and invited tenders from local suppliers³. The initial design had five secondary schools linked directly to a network connecting to a common Data Center and with a possibility of two adjacent primary schools to be connected via radio link, budget permitting. For a fair representation, two pilot sites were selected from Savaii and three from Upolu.

² TA completion date was extended to 31 December 2006 as per ADB contract variation no. 3 dated 10 November 2006.

³ The possibility of contracting suppliers from overseas was considered; there were pros and cons, but ultimately the accessible in-country after sales services was considered the key factor.

12. Upon reviewing the tenders received it was evident to the TA team that the initial design would not be possible within the allocated TA budget and it also appeared unsustainable. The key factor here was the high installation and monthly costs associated with broadband which was initially hoped to be provided by SamoaTel. The slow response by SamoaTel to the initial tender called in May 2005, and the unexpected pricing confirmed that the proposal was untenable. Also, despite the assurances given by SamoaTel during earlier meetings, they declined to bid on the provision of internet connectivity and ended up being too expensive as they did not have 'ready' infrastructure to roll out the broadband connectivity. This set the TA back as a new connectivity design and fresh tenders were needed.

13. Given the high price of the wide area network (WAN) as tendered by SamoaTel, extensive investigations were made in the second half of 2005 by the Communications Engineer (CE) into technology alternatives, namely 2-way satellite, 1-way satellite with terrestrial return, point-to-point wireless, and dial-up analog.

14. However, the most promising outcome was finding that point-to-point wireless might be possible for some schools on Upolu with the current ICT provision in the country. The above noted option for connectivity was further confirmed by the timely introduction of new ICT legislation by the GoS to regulate the communications sector and the issuing of new 3G licenses. These new developments provided alternative and cost effective connectivity. The TA team reviewed the situation and revised the connectivity design to adopt a hybrid model with a mix of wireless point-to-point for Apia pilot schools and dial-up for pilot schools elsewhere in Upolu and Savaii. The expansion of the wireless connectivity was particularly significant as it is relatively inexpensive to install, easily expanded to other parts of the country and very suited to the geography of Samoa. The wireless model for the two pilot schools in Apia was critical to being able to fully demonstrate the potential of SchoolNet.

15. Since the commencement of the TA, there have been very important changes to the previously monopolistic telecommunications regulatory regime that will benefit Samoa schools, businesses and domestic consumers. The initial impact on the SchoolNet project is the use of wireless broadband to be provided by CSL for two schools (and the MESOC site). This is a good outcome because of the networking and real-time information sharing potential, as well as the avoidance of monthly lease costs to a telecommunications carrier.

16. In mid 2006 with the arrival of Digicel in partnership with CSL to set up a mobile telephone business in Samoa, people now have a better choice of telecommunication services. The first step, during the second half of 2006, has been the rapid rollout of Digicel infrastructure of the Global System for Mobile Communications (GSM) mobile network throughout both islands. CSL has stated its interest in deploying a WiFi data communications network and it is understood that SamoaTel has plans for a General Packet Radio Service (GPRS) mobile data service as well as Asymmetric Digital Subscriber Lines (ADSL) at some future time. However, the reality is that the rollout of these data communications services will always be dependent upon the business case, which is invariably affected by technological, geographic and socioeconomic considerations. The change in future communications infrastructure in Samoa supported the hybrid model for now - migrating as soon as possible to wireless broadband for the three dial-up schools is part of the projected development for the SchoolNet. The other fortuitous outcome has been that Digicel and CSL are partners in the new mobile rollout. This should greatly enhance the capacity for expansion of the SchoolNet to more schools at a very reasonable cost.

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17. The other utility service that needs significant upgrading is the supply of electricity to all clients but particularly to the rural areas. Currently the supply has unexpectedly high power surges that have the potential of damaging SchoolNet equipment. While there are small surge control devices installed at the switch outlets this is not sufficient. It may be useful to consider a more rigorous and solid approach such as placing surge controls at the main power switch to the whole school. This will eliminate the risk of someone accidentally removing the small devices plugged into power outlets in the classrooms - as has happened since the SchoolNet equipment installation/commissioning.

2. Connectivity design

18. Whilst the fundamental concepts did not change much from the original design, there were some significant changes to how the WAN was eventually realized and the associated equipment provisioning. At the time of revising the connectivity design in September/October 2005, a decision was made by key stakeholders to rationalize the number and location of schools that would be included, and to modify the equipment order – to suit the revised design and ensure budget compliance.

19. Given the connectivity options/costs, three secondary colleges outside of the Apia area have dial-up analog connections only, which is not an ideal outcome given the poor reputation of dial-up in Samoa, but this situation can be rectified when wireless connectivity (or other cost-effective connectivity) becomes available. In the meantime, the dial-up model brings other schools into the SchoolNet concept (see Table 1, below) which was an important aspect of the revised design, allowing it to have a wider and more representative set of pilot sites. These dial up sites are close to the ideal model thus making it easier to develop them further as new connectivity options become available. As noted above, it is hoped that these changes can be effected in 2007. The two schools within the Apia CBD area plus the MESC have wireless broadband connectivity. This connectivity is limited to these sites due to the limited coverage currently available from the CSL wireless network.

Table 1: List of sites with connectivity types

Site	WAN Connectivity	LAN Connectivity
MESC	Wireless broadband	Wireless (new)
Vaitele-uta Primary School, Apia	Wireless broadband	Wireless (new)
Vaimauga College, Apia	Wireless broadband	Wireless (new)
Lepa Lotofaga College, Upolu	Dial-up modem and telephone line	Wireless (new)
Amoa College, Savaii	Dial-up modem and telephone line	Cat 5 Cable (existing)
Mataevave College, Savaii	Dial-up modem and telephone line	Wireless (new)

20. The final connectivity design uses WAN as a Virtual Private Network (VPN) to limit and manage access to the network and to monitor the volume of internet traffic that moves between the VPN and the WEB to keep costs down. Also, having a VPN system with a single gateway to the internet allows better management of filtering and virus protection. The design allows all sites to connect to a Data Center currently



located at CSL⁴ and through this data center link up with the other pilot sites within the VPN. Whilst this connectivity does not incur recurrent cost for the wireless sites, the dial-up sites have been given a 900 telephone number by SamoaTel to link up to the Data Center. The 900 number has a lower cost than a normal national phone charge which incurs a national rate and can be significant.

21. The VPN design allows caching of all information accesses from the internet and locating at the Data Center. Also, materials such as the teaching learning materials supplied by 2020 Communication Trust is an example of cached material at the data center. Caching reduces the need for each user to go to the internet (and associated costs). Information and data sharing within the WAN through the VPN system is far less expensive as it only involves the telephone cost for the dial-up sites and a small annual subscription cost for the wireless sites. As more information is cached and more users access the information this design will be more manageable and cost-effective.

22. From a technical point the design is much easier to expand as the prospects for better availability of broadband in the very near future materialize. Firstly, there is the prospect of SamoaTel establishing a DSL-type broadband service – at least in the main centers on Upolu and Savaii. Secondly, there is the prospect of further opening up of wireless broadband as a direct result of the granting in early 2006 of three GSM mobile telephony licenses, one of which was awarded to Digicel/CSL. By November 2006, Digicel/CSL had completed building a number of transmitter masts at high geographic points in order to achieve the requisite coverage and capacity on both Upolu and Savaii. These masts will be available in the near future for CSL to use for wireless broadband ('WiFi').

23. The use of thin client technology in the final design has proved its merits. (Thin client computing involves hosting all applications and data centrally on a server and accessing it using a simple terminal [referred to as a thin client] with screen, keyboard and mouse). Students wanting to download music etc are prevented because there is no provision of connecting external storage devices direct to the thin client terminals. The main advantages however of the thin client solution as deployed in Samoa SchoolNet are the small footprint taken up on the desks by the thin client terminals and the flexibility due to the use of wireless connections. Also since commissioning the Local Area Networks (LANs) there have been no problems with settings being accidentally (or otherwise) tampered with (since these are established in the servers) or of any virus being introduced in the network from floppy discs or the Internet. Tampering with the system settings as noted above are considered a major cause for systems being down. The TA mitigated potential problems of server downtime affecting access to the systems by users, by including the provision of a back-up server in the design.

3. Procurement and installation process

24. The protracted procurement process due to design change, the need for the local suppliers to get advice on technical aspects and order equipment from overseas, together with continuously seeking agreement from the GoS and ADB (culminating in the award of the contracts to Datec and CSL) perhaps can be noted as part of the useful learning experience for future projects of this nature in Samoa and the Pacific generally. These lessons, particularly those related to the capacity of local suppliers, should be considered as part of the outputs for a TA such as this.

⁴ Given the immediate concerns over technical management and support, it was considered, in the revised design, to house the Data Center at CSL, but in such a way that it could be moved later to MESC.

25. The suppliers, not following the advice of the CE to initially set a test bed in their workshops and later to use MESC as the test bed resulted in unnecessary shuttling between the pilot sites, the Data Center and/or the respective supplier's base office. Furthermore, the test bed is even more important when two suppliers are working with different aspects of the design that require synchronizing. For instance, configuring the email accounts which required setting up the servers in schools (done by Datec) to match with the directories in the Data Center (configured by CSL) was not always easy.

26. Package 1⁵ was procured and supplied by Datec which included the new wireless LANs at MESC and four schools. This was installed and tested in August 2006 and were commissioned and signed off in September 2006 by the TL⁶. The LANs are stable and have good connectivity speed. The two servers at each school were balanced for load distribution and technical training by Datec has been progressively delivered. The following training as per the contract has been delivered:

- Introduction to LAN (Program 1 - August/September 2006)
- Systems Operation and Design (Program 2 – September 2006)
- Advance Systems Operation and Maintenance (Program 3 – October 2006).

27. Considering the limited capacity at the pilot school sites Datec has developed and supplied to each site simple manuals outlining the above trainings to be used as a reference by the Community Learning Center (CLC) administrators and teachers. Datec has also set aside online/phone support for another 72 hours over the next 12 months, in accordance with their contract. Furthermore, the TA team in consultation with Datec have developed and agreed on a 12 month maintenance and service agreement which was also part of their main contract. Since this service agreement runs beyond the life of this TA, MESC will monitor the delivery of the maintenance service agreement. Package 1 has been fully reconciled - original contract against what was actually delivered and signed off - and all payments have been made to the supplier.

28. Packages 2 and 3 have also been procured, and supplied by CSL. All office equipment has been installed, tested, commissioned and was signed off in July 2006 by the CE. The few remaining items such as missing cables and certain furniture fittings were checked by the CE during his final input in November 2006 and signed off. The training associated with office equipment supplied under the TA has also been provided by CSL. As per their proposed training plan, 50 hours of training time has been set aside for online/phone support during the next 12 months. 'Cookbook' type manuals have also been prepared by CSL as a reference manual for the CLC administrators and teachers. Reconciliation for Packages 2 and 3 has been completed and final payments are being made as part of the close-down of the TA.

29. Under Packages 2 and 3 arrangements have been made with CSL to periodically supply agreed consumables and contribute towards the cost of utility services incurred by the SchoolNet pilot sites, over the next 12 months⁷. The above

⁵ See Appendix 2 for details of the six packages

⁶ Sign-off sheets have been used as a basis for agreement for payments to the suppliers and handover to the schools/MESC.

⁷ Under the CSL contract, certain costs were included to support a level of sustainability, leading up to when budget provisions will be made by GoS. (For the CLCs, the long term aim was self-sustainability).



arrangements plus the delivery of service under warranty, agreed additional maintenance and other support services, has been included in a service agreement developed and signed by CSL, ANZDEC and MESC in December 2006. Given that most of these services will be provided beyond the life of the TA, MESC will monitor the services rendered under this agreement.

30. Copies of the service agreements under Packages 1, 2 and 3, as well as all the handover documents, will be provided to MoF, being the EA.

31. For Packages 4 and 6 all equipment has been procured and supplied and the Data Center established at CSL office in Apia. The Data Center conforms to best practice guidelines in terms of backing up data, uninterrupted power supply, managed access, and fire and other risk mitigation requirements. Also the design is such that if required, at a later stage, it can be relocated to MESC or any other site. Some continuous fine-tuning of software particularly with the email (uses MS Exchange), content filters and virus protection will be ongoing as part of preventative maintenance. The CE has developed a monitoring and evaluation framework to effectively manage the performance of the VPN and the Data Center

32. Package 5 was awarded to CSL in July 2006 to develop an education portal using the MS SharePoint software. Whilst this software's capabilities were excellent the license cost was a potential future issue for Samoa SchoolNet, leading the team to explore other open source software. Moodle was identified as an option and despite a few limitations it was considered satisfactory and adopted in September 2006. A 'working model' of the portal was developed in September 2006 and uploaded to the VPN. The portal sits within the VPN system as a gateway to the internet. Thus the first port of call for users is the portal and users do not have to go to the internet every time, allowing quicker and more cost effective communications. Also having a single gateway to the internet allows for better management and monitoring of the accessing of undesirable sites. The portal was tested and commissioned by the CE in November/December 2006. Populating the portal with both education and community materials will be an on-going process and as teachers, the Curriculum Materials and Assessment Division (CMAD) and other MESC departments develop ICT competencies the portals will become more useful and hopefully an integral part of the teaching learning tool in Samoa.

33. Access and management (upload, deleting and modifying any information) of the SchoolNet portal has two levels. Firstly, the main portal which is driven from the Data Center and can be accessed by CSL staff for system maintenance and the Principal IT officer in MESC. However, the approval process of the content of the information that may be uploaded to the portal is still not developed clearly. Considering that the portal is an asset of the MESC it will be prudent for MESC to develop some policy guidelines and procedures for dealing with content approval. The second level of access and management deals with the sub-portal which is driven from the LAN servers. This information is local and is managed by the school system administrators. Again, with regards to approval of the content, the school principal and/or the school committee needs to develop policies and procedures to approve what content is appropriate to be uploaded. Both the above content approval processes require urgent action.

34. The development and commissioning of a portal could not be planned in detail particularly with regard to content generation hence there was a need to seek additional assistance for content creation and training the school administrators to manage their respective sub-portals. To accelerate this aspect of portal development, a contract was issued to a local IT designer, under the portal budget, to assist in getting content developed for schools. While this has helped get an initial version of each school's portal there is room for further development.



35. Arising from setbacks and challenges encountered by the team a checklist⁸ of questions has been produced that should be asked during the planning and implementation stages of any other similar projects.

B. Training

1. Approach to training

36. The design of the training program has been significantly compromised by the delays, especially in the equipment installation and commissioning. The prolonged time planned for teachers to experiment, reflect and adopt the new teaching and communication practices using ICT was no longer possible. Nevertheless, the International Training Consultant (ITC) together with MESC staff and some volunteers managed to provide as much mentoring and support as possible within the limited time. The SchoolNet training was conducted from 21 August – 15 December 2006. All training under the TA, including the training of teachers finished in December 2006. The training program was originally planned for the July 2005 to November 2005 period. Four training programs were delivered as outlined in the inception report and the subsequent Training Plan namely; (i) Basic Skills in Computer and Digital Media; (ii) Using the computer as a teaching and learning tool; (iii) Development of resources and lesson materials for selected subjects using the CD and internet as sources of material; and (iv) Training managers/principals/school committee members on managing CLCs at the schools.

37. The ITC worked closely with CMAD from March to May 2005 to produce curriculum maps and assess materials that would be most useful in e-learning format. CMAD staff were enthusiastic about the opportunities offered by computer learning and assisted with appraising the set of locally purchased courseware material during May - June 2005. They considered that these software had limited use as they lacked animation and could not be installed on a network for multiple users. The ITC in consultation with CMAD developed a courseware supply plan to source out useful e-learning material. The Learning Federation (TLF) in Australia was approached to use some of their Learning Objects which they kindly agreed to, and a Letter of Agreement was signed by CMAD in June 2006. This allows MESC to use the nine learning objects for a year and is subject to renewal. As part of the agreement CMAD is committed to evaluating the use and effectiveness of the Learning Objects in 2006/7 and to reporting the results to TLF. The Learning Objects were selected based on their pedagogical value and CMAD-identified subject areas and grade levels.

38. The initial CMAD enthusiasm diminished as the TA progressed and it became difficult to engage them in delivering the training, as was initially planned. Despite several attempts by the members of the TA team, CMAD did not engage with the TA as much as was anticipated. Thus the initial design of the training program of adopting the "train the trainers" including CMAD staff, that would then have provided on-going mentoring beyond the TA, did not happen. Only administrators from the pilot schools participated in all the training and provided training to teachers in their respective schools. Nevertheless, a successful teacher professional development program focusing on skills development was delivered. The program provided (i) intensive training in which teachers explore new ideas and materials over several sessions; (ii) follow-up consultation with mentors over an extended time period as teachers implement new practices; (iii) ongoing reflective conversation with

⁸ This checklist is attached as Appendix 3: Checklist for Technical and Procurement Aspects of a SchoolNet Project



colleagues doing the same job and implementing similar technology applications; and (iv) observation of other teachers using exemplary techniques for incorporating technology in the classroom

39. Critical information, such as the curriculum framework which should be a public document to which all teacher trainings should be linked, is still not available even though numerous attempts were made to obtain the information from MESC. This makes it difficult to illustrate to teachers how the SchoolNet training is linked to their daily practices. Despite the above barriers, the ITC, with assistance from MESC IT staff and some volunteers, has delivered all training programs and also supervised the trainers (albeit in a limited way, due to time constraints) mentoring of other teachers in their respective schools. The mentoring of trainers training teachers in their schools continued until the closure of the school for holidays in December 2006. However, despite the disruptions caused by technical problems, the ITC has been flexible to work around the various disruptions and proceed with the training. The level of training delivered was very basic, this was very much contingent upon the initial base level ICT competency among the teachers - which was at the beginner level for the majority of the participants.

2. Development of training materials

40. The upside to the delays in equipment delivery and installation was that it gave more time for a systematic selection and preparation of materials. Materials for basic training in MS Word and Excel were readily available however it took more time to decide on an interactive training approach that would allow students to progress at their own pace. The Beta versions of the material developed was tested with CMAD staff from March to May 2006 in three workshops and changes were made as deemed necessary. All training materials have been developed and final versions supplied by the contractor. The learning objects can be seen at www.samoaschoolnet.edu.ws/learning/courseware_map.htm. Complementing the Learning Objects, training manuals were also developed, printed and hardcopies supplied to all sites for use as reference material. These manuals have also been uploaded to the portal under the URL provided above. All training materials have been reviewed by the TL and deemed satisfactory and final payments made to the contractor under the close-down activities.

41. Through the initiative of the TL, the 2020 Communication Trust, a not-for-profit organization from New Zealand (NZ) has provided the SchoolNet with a large volume of teaching learning materials from the NZ Ministry of Education (MoE) portal. Some of this material is in the Samoan language. This material is cached at the Data Center to be used by the SchoolNet community without having to go to the internet. It is hoped that the project can attract more such support to build the online teaching learning resources. This material can be seen at: www.samoaschoolnet.edu.ws/index.php?option=com_content&task=view&id=11&Itemid=11

42. Furthermore, the inventory of ICT teaching and learning materials (re-named WEBLINKS) developed early in the TA has been updated and now has over 100 links to useful educational materials for primary and secondary educations. The Weblinks are "hot" and links the user directly to the respective sites. This inventory now has information to advise teachers of the relevance to grade levels, subject types and also how it may be used. Again this WEBLINK should be seen as a live and growing entity and as teachers find new sites they can advise CMAD who then can check them out and include them in the Weblinks.

43. Perhaps, as part of the ADB RETA-6278 "Innovative ICT in Education and Its Potential for Poverty Reduction in the Asia Pacific Region" and the upcoming ESP II loan project some attention could be directed toward this activity. CMAD should "leapfrog" the teaching learning resource development and progress to electronic materials - solicit material from TLF under the AusAid support and from the NZ MoE website under NZAID, similar to the idea noted above regarding the 2020 Communication Trust. Curriculum innovations and the associated teaching resource materials development are no longer about the protracted process of developing hard copy materials. It is more about developing capacity to aggregate useful online information, adapt/contextualize and disseminate to teachers. There is a need to continue building a repository of electronic teaching learning resources. Many international sites would willingly share their resources for minimal costs. The development and or soliciting of electronic materials to support teaching and learning in the classrooms should be the function of CMAD. If CMAD's capacity is developed to undertake this function it will be extremely beneficial to the education system in Samoa. The TA team has identified entry points⁹ for both the above-mentioned RETA and the ESP II projects to provide continued support to SchoolNet.

44. Related to the above point regarding the CMAD capacity development there is also an urgent need for MESC to review its ICT policy and procedures to facilitate the introduction and use of ICT in the schools. MESC urgently needs to have presence on the Web and a webpage as an interface to consolidate the various databases in MESC will be a good start. The lack of easy access to information is a major deterrent to empowerment of innovative teachers. Using an authentication process, teachers should be able to access most curriculum information and the associated teaching and learning support material. Currently, this is not possible - many teachers do not even know what the current primary curriculum framework looks like. The SchoolNet model with its comprehensive Data Center can facilitate this.

C. Social Development

1. Baseline survey of ICT intervention in pilot communities

45. The TA Social Development specialists compiled a technical report on the baseline data for each of the pilot communities¹⁰. This field work took longer than anticipated because the pilot communities were changed to include three new communities when the connectivity model was redesigned. The detailed descriptions of the socio-economic and ICT awareness and usage factors provide a rich overview of each community's capacity to support SchoolNet. The individual community profiles have been summarized as a table and are given in Appendix 6. The summary table provides a useful assessment of the communities' competencies in working with ICT and other technical equipment. It also provides estimates of the communities' capacity to meet recurrent costs, an important consideration for sustainability of the SchoolNet, including the community access aspects.

46. Most pilot schools have embraced the SchoolNet but are reluctant to extend their enthusiasm to the Community Access Program (CAP) and open school facilities to the broader community. As noted in the community baseline report, most of the pilots have deferred the community access part of the project until mid 2007. Given the limited baseline ICT competency in the community and the lack of experience in

⁹ See Section V, Subsection B: Entry points for RETA and ESP II for supporting SchoolNet.

¹⁰ The full report was submitted with the DFR and the summary extracted from the full report can be seen in Appendix 5.

managing such a program, the above course of action may have some merit, although exactly how in practice this would be implemented at that time is a question that needs to be addressed. The design of SchoolNet and the CAP simultaneously impacting on two fronts was possibly over-ambitious. The CAP component was intended as an income generation activity to enhance the sustainability of the SchoolNet project, but in practice (certainly over the short term) it has not been possible to bring too much on board too quickly.

47. Another factor that perhaps has had an impact in fostering ICT awareness in the communities is other similar projects such as the one funded by UNDP and other international agencies which also are establishing community tele-centers. For instance the Samoan National ICT Committee has invested in community tele-centers which are managed by women. With so many ICT projects happening in the country there is an issue with *ICT absorption capacity* (including coordination and sustainability) by the villages/communities and the country as a whole. An analysis of the initial community capacity baseline data and subsequent data from consultative meetings are discussed later under the monitoring and evaluation section of this report.

2. Awareness and advocacy programs

48. The TA's initial design expected the Social Development specialists to run advocacy programs and develop public awareness campaigns but no funding was allocated to undertake these tasks. The TA consortium sought approval from ADB to allocate funds to support the awareness and advocacy activities and formal approval was granted in March 2006. Since then several advocacy activities have been undertaken such as TV news programs, documentary of the project/TA activities, newspaper articles, signage on the SchoolNet CLC rooms, presentations at conferences locally and internationally by the Deputy Team Leader (DTL), reporting on local radio and advising the National ICT Committee, the MESC Executive and other concerned parties.

49. Specifically, the advocacy programs produced a television advertisement that was aired on the two local television stations during November and December 2006 and a schedule for the month of February and March 2007 has been approved and paid for. Posters promoting the SchoolNet were made and placed in each of the CLCs and at hot spots in town ie Public library, Samoa Tourism Authority Office and Ministry of Education main office. The Samoa Observer was given a copy of the poster and has negotiated for the poster to be published at certain intervals for the months of February, March and April 2007. Furthermore, the Samoa Observer has published articles and news reports about the SchoolNet project.

50. Furthermore, the Social Development specialists have, throughout the life of the TA, maintained contact and strongly advocated the benefits of ICT to the pilot schools and communities to keep their enthusiasm and interest high and alive. This has been a challenging but very necessary task particularly considering the delays in the implementation of the TA at various stages.

51. SchoolNet advocacy also addressed linking with other related projects, and donor agencies. The DTL through her association with the Ministry of Communication and Information Technology (MCIT) and other ICT organizations in the country continued to solicit interest from other projects and donor agencies such as UNDP and UNESCO to support the SchoolNet. As a result of this proactive stance and a series of meetings by the TA team, a proposal developed by the TL in consultation with MESC has been submitted to UNDP. The proposal is in lieu of the disbanded e-bus. The proposal seeks to redirect some of the e-Bus funds (previously allocated to



MESC) to SchoolNet which will allow three more sites to be fully equipped and connected as per the SchoolNet model. MESC has agreed to follow up with UNDP on this proposed donor coordination for expanding the SchoolNet.

3. SchoolNet management model for Community Learning Centers

52. During the inception phase the Social Development specialists in consultation with the TL met with all pilot school committees and informed them of the need to consider a management model to facilitate effective running of the SchoolNet. Subsequent visits to sites closer to Apia were used to ascertain the level of management capacity at each school. The design of the TA expected SchoolNet to have a business development aspect for generating funds to sustain the SchoolNet activities (including the CAP) which is a shift from the traditionally differentiated roles of schools and communities in Samoa. Based on the above appraisal a draft framework¹¹ for management of the SchoolNet and Community Learning Centers was developed - it included three main parts: (i) the management issues; (ii) the administrative issues; and (iii) the business development/plan. A copy of the draft management framework was supplied to all sites and workshops/working meetings were held with SchoolNet committee members to assist them to develop their own management model. The emphasis on each pilot site developing their own management model as opposed to being supplied one was to empower the SchoolNet committees and encourage ownership.

53. However, as noted in the social development monitoring and evaluation section of this report, the majority of the SchoolNet committees found it difficult to deal with a single model for both the school and the CAP aspects. Mataae'vave and Vaimunga pilot sites have simply postponed this task to 2007. Others have started work towards developing the management model but seem to think of it as a school learning center as opposed to Schoolnet with the CAP. While this may not be the final model, it was encouraged so that they will at least have some form of a model. It appears that the dichotomy created by the traditional view of separating schools from local communities is a serious barrier in this regard. Access to information from previous projects such as the school-based management initiative could have helped clarify some of the misunderstanding and reinforced the management concepts. The SchoolNet committees have been advised that they have to develop and adopt a planned approach to run the SchoolNet because it has expensive equipment and is not cheap to run. It is difficult to understand the reluctance of the committees to draft a simple management plan - something that will assist them to conduct the daily operation of the SchoolNet.

54. At the end of the TA in December 2006, only Vaitele-Uta and Amoa College had supplied the TA team with draft versions of their management models. Despite the TL, DTL and the other Social Development specialist providing templates and working with the committees constantly emphasizing the need to have this model in place to effectively run the SchoolNet, the commitment from the pilot schools has been limited. The principal of Lepa College, where the Prime Minister is President of the school, has advised the TA team that he has initiated work on the development of the management model but it is at a very early stage. The expectation to have the SchoolNet management model fully in place by week seven was perhaps too ambitious. Nevertheless, 100% of the SchoolNet committees were aware of the significance and nature of such a management model but manifesting it into a tangible form has been difficult. At the end of the TA approximately 60% of the SchoolNet committees had some form of model to manage their individual SchoolNet site.

¹¹ A copy of this draft management plan is presented in Appendix 4

55. Given the lack of commitment from SchoolNet committees to develop a management model, the pilot schools were advised that as an encouragement, the continuing support towards their recurrent expenditure will be provided only to those schools that have supplied their first draft of a management model. MESC will monitor this and follow up with the pilot sites to hopefully motivate them all to produce their management models.

D. Monitoring and evaluation

1. Community access monitoring and evaluation

56. During the inception phase the TA team undertook extensive consultation with the selected pilot communities. The community consultation process solicited the opinion of local communities with regards to their expectations from the SchoolNet project; these are outlined in the summary table of community baseline data¹². The selected school committees agreed to the design and were willing to make available their school premises and the SchoolNet facilities to the local community. Hence the location of the sites (rooms) was such that it provided easy access to the community when needed, without disrupting the other school activities or facilities. All school committees had agreed to develop an individual management model for running the SchoolNet which has not progressed as anticipated. Nevertheless, the delays in the initial timetable for the installation, testing and commission of the equipment etc, this did not dampen their enthusiasm as they remained committed and are willing to continue to support the SchoolNet pilot initiative.

57. The novelty and a lack of understanding of the implications of SchoolNet, the combining of the schools and the CAP, the delays in the installation and commissioning, the initial uncertainty about recurrent costs etc., all hampered the committees in developing their SchoolNet management models. The TA team provided a management framework and conducted workshops to discuss the three key aspects of management, administration and business development yet only two schools developed draft models. The pilot schools have been encouraged to at least get a management and administration policy and procedures for the SSN as soon as possible.

58. The community base line survey suggests that out of the five schools Vaitele-Uta and Mataaeavave are two communities that have better potential for starting up the CAP. The people in these two communities are educated and work as public servants, in retail businesses, in manufacturing industries, in banking and in other commercial enterprises. Many of them have used ICT in their work and recognize the value. Also they have regular income through salaries/wages hence have capacity to pay for services. Being close to the largest town in Upolu and in Savaii they have the advantage of having a better infrastructure which in turn means better services can be provided. Vaitele-Uta, which has highly educated people in the committee, is the only site that has made good progress with their management model.

59. Lepa Lotofaga community is the remotest of the five pilot sites. Although it is the Prime Minister's village the community generally is very traditional and dependent upon subsistence economy - fishing and farming. Thus they have limited access to surplus funds to pay for services. What is lacking in the economy of the community is compensated by the enthusiasm of the school principals and the SchoolNet committee. Vaimauga has the potential but the committee and the community has been slow to support the school and the SchoolNet initiative.

¹² This baseline data summary is presented in Appendix 5

60. In Savaii, Amoa College has been running a computer lab through the courtesy of a Peace Corp teacher. This school has great potential to establish and manage a SchoolNet project but the community access aspect may not be that easy. There is some 'user pays' initiative in place at the school which needs to be integrated with the overall framework of the SchoolNet management model with proper reporting and accountability. Amoa College is the other pilot site that has submitted a management model albeit at a very basic level. The draft needs considerably more work which, at this stage has been deferred to 2007.

61. The monitoring and evaluation indicator of 80% of the community becoming aware of the benefits of ICT was met. The social development specialists continuously kept the community informed about the project and the benefits of ICT to their daily lives. This was further enhanced by the advocacy programs which developed a series of promotional television materials showing the CLCs (see Appendix 5). Some communities also benefited from other ICT projects such as the women's committee tele-centers¹³ in neighboring communities to develop an appreciation of ICT capabilities.

62. With the exception of a few, the community ICT capacity development was challenging as the long tradition of keeping schools (even though it is a key institution in the society) separate from the community was slowly changing. Schools are traditionally viewed as a place for children to go to learn and other places such as the women's committees and churches are expected to deal with the broader community matters. Most pilot sites have agreed to defer the CAP part of the project to 2007. They prefer to firstly support the ICT in schools and have this functioning well so that their children can receive ICT education. As a second step to this project they will gradually open the SchoolNet to the broader community.

63. The other factor that influenced the decision to defer the CAP is the base level ICT capacity among the community members. This is very low causing much apprehension amongst the community members. Sites at which TA Program 4 training was provided was only at a surface level. The program was mainly delivered to school principals and SchoolNet committee members. A lot more training is needed for the community members to become proficient in using ICT. The time constraints caused by the various delays further compounded the community capacity development. The targets of 30% in week 15 and 100% in week 20 (of the community trained and actively utilizing ICT) was not achieved. Also, with the decision by most pilot sites to defer the CAP aspect to 2007, there was a reluctance by the community members to seek training in using ICT. Training should be a pivotal part of any follow-up project to ensure that CAP does eventually manifest as an entity within the SchoolNet. A much longer time frame is also required to ensure that relevant and workable strategies are developed and enforced to enable CAP to take place.

64. The general consensus among the pilot communities is that the technical design is appropriate for Samoa, and that the LAN, WAN and portal aspects are efficient. It can also be concluded that the solution as deployed is overall cost-effective but would be much more cost effective with expansion to encompass more schools.

¹³ ICT in collaboration with SamoaTel has several tele-centers that are run by women's committees. These are also still at a rudimentary level.



2. Training monitoring and evaluation

65. During the inception phase the ITC did an appraisal¹⁴ of the ICT capacity of teachers in the pilot schools which showed a very low level of competency. Most teachers were aware of what a computer, internet, camera or fax was and many used some of the ICT technology (mainly phones and TV/DVD) at home. However, a large number of the pilot school teachers had little understanding of the advantages of ICT in teaching and learning, the rich and extensive teaching and learning resources that are available and how teachers may quickly progress to developing their own teaching resources. Integrating ICT with pedagogical strategies such as (i) repetition and practice of routine knowledge and skills (ii) self-paced learning; and (iii) collaborative learning supported by ICT were introduced in the training as part of the TA intervention. These pedagogical techniques were embedded in activities such as lesson planning, delivery of lessons and in development of courseware by integrating ICT into selected subjects in the existing curriculum.

66. A review of the data in Table 1, Appendix 6, suggests that there has been an increase in teacher awareness in all 6 categories of technologies but the most dramatic increase has been in the use of computers and internet. The increase in the awareness of phones is probably largely due to the arrival of Digicel in Samoa and not SchoolNet. It is also interesting to note that whilst these teachers have been introduced to computers and the internet, very few have access to these technologies at home to develop their competency. Not having easy access to the technology can be a major obstacle to facilitating rapid uptake of ICT by teachers. Comparing the pre and post-intervention data on the use of specific ICT's in teaching suggest that the number of teachers who use TV and DVD has increased but the same cannot be said about the use of computers, digital cameras and internet. This is understandable given the very short period of training provided to these teachers in these technologies which are also comparatively novel. Considering the ways in which ICT may enhance teachers work there is no clear pattern in the data to suggest if and how the training has impacted on the teachers' capacity to use ICT in schools. Finally, Table 1, Appendix 6 also shows no clear impact of the SchoolNet training on teacher professional development. Given that there was no time to link the SchoolNet training to ongoing MESC or NUS-offered in-service or other professional development training, it was difficult to measure this outcome. However, having the SchoolNet network developed and commissioned, this may be something for the ESP II project to explore.

67. Table 2, Appendix 6 summarizes the training materials developed and supplied to the pilot sites and an assessment of the impact of the training. The impact is judged at three levels: (i) Level 1, being at an awareness level; (ii) Level 2, being at a basic level of proficiency and requiring close supervision and (iii) Level 3 being at a functional proficiency level and can work independently in some areas. The pilot schools and MESC have been very pleased with the training manuals and the teacher workbooks. These are the first such resources provided to teachers in Samoa and there is considerable interest in making this available to all schools. The soft copies of these documents have been uploaded to the SchoolNet portal. Reviewing the level of competency achieved by the participating teachers, it suggests that the ICT competency level is still low. This is not any indication of the quality of teachers in these pilot schools rather it's the low baseline and the very short training period that has contributed to this low level of achievement.

¹⁴ See Appendix 6 : Table 1 presents a consolidated reporting of baseline data with pre and post data. Table 2 presents the targeted ICT resource development and an assessment of the outcomes of the training provided under the TA.



68. In light of the above discussion the monitoring and evaluation targets noted in the TA design have not been fully achieved. The target of 75% and more teachers receiving some form of training was achieved even though the training was at a very basic level. The coverage of 40% of priority subjects to ICT-based teaching and learning was reached as training activities included the three core subjects, Maths, English/Samoan and Science. The number of activities developed in each subject is limited, nevertheless the scope covered 40% of the priority subjects. However, the implementation of the training was, as outlined in the training program, a mix of face to face and ongoing mentoring. On-line mentoring was not possible at this stage due to connectivity issues, the low baseline competencies and the time constraints.

69. Targets such as 90% of teachers in pilot schools conversant with using ICT in schools, 75% of teachers in pilot schools using ICT to improve education standards were not achieved. To develop the level of ICT proficiency needs to achieve the above outcomes was not possible with the limited training under the TA. Also the TA qualitative indicators such as a 50% increase in teachers completing in-service training, a decline in teacher resignations by 50%, improved student outcomes by 2% and pilot schools student grade points improving by 5% will need to be assessed as part of the longer term outcomes of ADB investments in the Samoan education. Whilst these are important and valid targets/expectations, these could not be met given the relatively short timeline and objectives for this TA. However, as suggested in the Issues, Lessons and Recommendations sections of this report there is an urgent need to consider sustainability of these pilot interventions. One way is by adopting a program approach - aligning projects such as the ADB RETA and the ESP II project, together with further specific and focused TA support, to complement and/or provide continuity to work started under the SchoolNet. Only after further periods of well directed and coordinated support will the above noted targets become more realistic and achievable.

3 Connectivity design and systems performance monitoring and evaluation

70. Monitoring and evaluation of the connectivity design and the network system was done iteratively during the equipment installation testing and commissioning. This was done in terms of procurement, delivery, installation and commissioning procedures and timelines and the design and network systems performance. With regards to the first type of monitoring and evaluation, despite the delays with procurement all equipment and services are now in place and are operational. Each subcomponent of the system was tested by the CE and the engineers of the respective supplier for compliance to best practices and Quality of Service. The SchoolNet connectivity, data center and the portal were all in operation at the time of closure of the TA in December 2006. The second level of monitoring and evaluation that deals with the network and systems performance is meaningful only when done over a period of time. Hence, as part of the service agreement a framework for monitoring and reporting on the systems performance has been developed and is presented in Appendix 7.

III. OUTPUTS AGAINST AGREED ACTIVITIES

71. In light of the above-mentioned delays in achieving a cost effective design, and then revising the procurement list to fit the TA budget, many of the agreed activities are slightly out of the planned phases, having been adapted to fit with the actual situation. All activities in Phase 1 – Inception, were completed and reported in the inception and the interim reports.

72. Table 2 below outlines outputs against agreed activities post-inception. This summary table reports on all items in Phase 2 onwards plus all other activities necessary for the completion of the TA.

Table 2 : TA Outputs and Activities Status

Task #	Task Description	Outcome	Comments /Agreements
Phase 2: Procurement and Installation of System			
2.1 & 2.2	Prepare the specifications for selected IT options	Completed	Connectivity and equipment list developed, approved by ADB and EA.
2.3	Organize procurement	Completed	i) Revised connectivity and equipment specifications were grouped into six packages for procuring from local suppliers. ii) Clarifications and negotiation for alternatives to fit within the TA budget were discussed and final tenders were drafted accordingly.
2.4	Approval of selected suppliers from ADB/EA	Completed	Approval from ADB was obtained on 22 March 2006 (after EA) and contracts for delivery and installation of the equipment were signed on 24 March 2006.
2.5	Delivery of equipment	Completed	i) Packages 1, 2, and 3 have been delivered to all pilot sites and the school principal, the TA representative and the supplier all have signed off on the delivery. ii) Packages 4 and 6 have also been delivered to CSL downtown premises where the Data Center will be located.
2.6	Installation of hardware	Completed	All equipment – hardware and software has been supplied, installed and commissioned.
2.7	Training on operations procedures	Completed	Some on-line help and support for the next 12 months has been included as part of the service agreement with the suppliers.
2.8	Identifying classroom layout/furniture	Completed	This was discussed and agreed with the respective pilot schools during pilot site assessment visits. This discussion formed the basis for selecting the most appropriate furniture for the Samoan context.
2.9	Furniture supplied and fitted	Completed	The supply and installation of all furniture to the pilot sites has been completed and signed off by the school principal, TA representative and CSL (the supplier) in September 2006.
2.10	Purchase, install software	Completed	i) Datec has procured and installed all necessary software to run the thin client network for the LAN and for connecting to the Data Center. This has been signed off by the CE and the TL in September 2006. ii) CSL has procured and installed all necessary software for all the office machines supplied and this has been signed off by CE and TL in July 2006. iii) CSL has procured and installed all software for the Data Center and this has been signed off by the CE in November 2006.
2.11	Fine-tune software	Completed	Some fine-tuning will be ongoing as part of the systems management for the next 12 months and these have been included in the service agreement with the suppliers.

Task #	Task Description	Outcome	Comments /Agreements
Phase 3: Interim			
3.1	Collect all data from pilot sites	Partially Completed	Baseline survey of pilot communities and baseline data on teachers ICT competencies has been completed and is included in the TA Final Report. However more meaningful post-intervention data will have to be collected after the full SchoolNet has been in operation for at least 6 months. It has been noted as a possible activity for the ADB RETA project and follow-up projects to this TA.
3.2	Identify short term correction	Completed	i) Revised training plan implemented to cover all training as planned; however, the extent of mentoring and continuous support to teachers was cut back due to time constraints. ii) Recurrent costs are not factored in the budget for the current Samoan FY iii) Five Peace Corps Volunteers with ICT in Education background have arrived and been briefed on the project and will be an additional human resource for the SchoolNet.
3.3	Prepare Draft Interim Report	Completed	Report submitted for discussion at the tripartite meeting - June 2006.
3.4	Prepare and conduct tripartite workshop	Completed	Review meeting held in June 2006.
3.5 & 3.6	Compile feedback from tripartite workshop and finalize Interim Report	Completed	Feedback included in the finalized report and was approved by EA/ADB.
Phase 4: Training of Teachers			
4.1	Prepare detailed training program	Completed	Detailed training plan was developed and submitted to ADB and EA. This was approved by EA/ADB in November 2005.
4.2a	Conduct training program for trainers	Completed	The SchoolNet administrators (trainers) and some CMAD staff were trained by the ITC. This was done program by program. After each program training the trainers with mentoring support from the ITC trained other teachers in their respective schools
4.2b	Development of Training Material	Completed	i) 9 learning objects and 15 adaptations of electronic learning materials have been developed. ii) An inventory of useful sites for teaching materials with URLs hotlinked, has been developed. iii) Soft and hard copies of six training manuals/ workbooks have been developed. All above materials were approved and signed off by the TL in September 2006.
4.3	Compile feedback and fine-tune program	Completed	i) The training program has been revised several times to fit in with the available time due to equipment delays. ii) The training could benefit with a longer mentoring phase - something that the ADB RETA, ESP II and follow-up projects to this TA might want to consider.
4.4	Supervise trainers conducting site-based training	Completed	More training is needed and as noted in the TA Final Report, ADB RETA and ESP II can make a contribution in this regard.
4.5	Compile feedback and finalize training program	Completed	The final input by ITC was completed at the end of December 2006; all four training programs were delivered.



Task #	Task Description	Outcome	Comments /Agreements
Phase 5: Finalization			
5.1	Collect all data from pilot sites	Completed	This has now been collected and a summary of this information is included in the TA Final Report.
5.2	Identify areas of short term corrections	Completed	This has been included in the TA Final Report under lessons learned, entry points for ADB RETA and ESP II, and checklist for future similar projects.
5.3	Prepare draft final report	Completed	Draft final report been prepared and submitted on 23 November 2006.
5.4	Prepare and conduct tripartite workshop	Completed	Tripartite/review workshop was conducted on the 28/29 November 2006 and site visits were also organized for the ADB and EA to see two of the pilot sites.
5.5	Compile comments from workshop	Completed	Included in the TA Final Report
5.6	Revise, finalize and submit the final report	Completed	Final Report completed and submitted January 2007.
Phase 6: Other Activities			
6.1	Main SchoolNet Portal	Completed	Version 1.0 of the SchoolNet portal is up and running. As with all other portals this is an evolving output and will continue to be populated with educational materials appropriate to Samoa. A Peace Corps Volunteer has been assigned to MESC IT department to assist with managing the portal.
6.2	Sub-portals	Completed	Peace Corp Volunteers will continue uploading content.
6.3	Development of CLC management model	Completed	A SchoolNet management model has been developed and supplied to all pilot sites.
6.4	Initial review completed	Postponed to 2007	As per the community development M & E report the full SchoolNet management model has been deferred to 2007 by all sites. Two pilot schools have draft versions of their management models which require more details to be included
6.5	Include monitoring and evaluation information and analysis	Completed	Monitoring and evaluation section has been included in the TA Final Report.



IV. TA CLOSE DOWN

73. All activities have been completed and the TA consulting services concluded at the end of December 2006. This Final Report has been completed in January 2007. The TA consortium will complete all the outstanding financial and other administration and close-down with suppliers and the ADB/EA.

V. ISSUES, LESSONS LEARNED AND RECOMMENDATIONS FOR THE FUTURE

A. Issues and lessons learned

74. There have been a number of issues that affected the implementation of the TA, which have arisen for the following reasons:

- Identifying a suitable connectivity model. The timing of the TA was unfortunately six months before the new ICT legislations were adopted and the communications sector opened for competition. The revised model adopted by the TA for the pilots took advantage of the new legislations; this, together with the further opening up of communications infrastructure in the near future provides the potential to develop the TA model in the long term as an appropriate, efficient and sustainable model. Connectivity is key to the successful roll-out of the SchoolNet model to other schools.
- Initially, the EA was reluctant to commit to funding the early recurrent costs of the SchoolNet operations for the schools and the SchoolNet. Subsequent to the TA consortium visit and meetings in September 2005, this was agreed as part of the package, and the EA, as well as other agencies, indicated their strong commitment to SchoolNet. The recurrent costs budget agreed during the September 2005 meetings should have been included in the MESC budget for the FY 2006/7. As it turns out, the delays in the TA implementation have resulted in some of the recurrent costs being funded during the TA lifetime, which was very useful as the MESC budget provisions for FY 2006/7 did not materialize; however, the GoS commitment is still important for the future.
- Delivery of equipment by the two suppliers. The first delay related to the re-tendering process, once the revised connectivity model and resultant equipment requirements were known. The later delays rested with the two suppliers – Datec and CSL; the equipment should have been installed in late May according to the two contracts – the delays were two to three months. In addition to the delays in supply, there have been issues with the two suppliers in how to deliver the services in a coordinated and effective way – there have been a number of teething problems and instances where the required procedures were not followed. The TA has provided a good insight to local IT capacity in general and the need to strengthen this.
- The ICT absorption capacity in a small country with a limited population is a concern for the project. There are too many projects doing similar activities - supplying equipment and setting up tele-centers with little regard for recurrent costs, systems and procedures, technical support needed and other sustainability issues. The Prime Minister at the UN meeting in Apia in September 2006 cautioned donor agencies and requested a consolidated and better coordinated approach to ICT intervention in the country.
- The baseline ICT competency of teachers and CMAD is low and will require an extended period of training and mentoring. The reluctance of CMAD to

fully engage with the project is unfortunate as they could have been the key people to be trained to provide this support. This needs to be addressed in follow-up activities.

- The assumption that the project will be self-sufficient in the short term is being very ambitious. Given the population density of some of these villages and the average earning capacity, self-funding may not be fully possible, certainly not in the short to medium term. However, a public-private partnership between the government and the community has a much better chance of succeeding.
- The ICT technical expertise within MESC is very limited. The current two full time staff will have little chance of supporting the project on top of their current duties. Although the TA has negotiated for the services of two Peace Corps teachers to give some much-needed technical support to the project, MESC has to seriously consider adequate resourcing for maintenance and other technical support.
- In the medium term, MESC needs to have a plan and budget for upgrading equipment and purchasing new software. Like textbooks and furniture, electronic equipment also has a limited life span and forward planning is very important to ensure continued access to ICT.

75. Despite the above, the project, if supported well, will significantly change the teaching learning in Samoa. The model developed by the TA is still considered to be the right way to proceed. At the end of the TA, the pilots are up and running, including the two wireless pilots and the portal where the full potential of SchoolNet can be run, and initial training has been delivered. There have been delays in completing the required outputs under the TA, but this has not changed the need for these outputs nor the success of them.

76. There have been a number of lessons from this TA - some aspects have been learnt during the TA as it has progressed and have been taken account of and some of these are left as recommendations for the future. In a pilot program such as this, these lessons are considered as part of the outputs. The key overall lessons from the TA are:

- Provision of IT equipment itself will not provide the solution to improving access to ICT in education and the wider community. A holistic or integrated approach needs to be adopted, taking account of infrastructure development, systems and procedures and capacity building – capacity building in schools, in CMAD and in local capacity in general (eg IT services).
- There needs to be a long term sustainable approach from the Government and the donors. Short term, ad hoc projects from donors working in isolation will not work. The Government, whilst showing a fair level of commitment to this TA, needs to expand this commitment, in areas such as provision of human and budgetary resources, and partnerships with the communities.

B. Recommendations for the future

77. At the end of this TA, the pilot schools will effectively be on their own, although the models developed and the training conducted will leave behind a level of sustainability. The model developed under this TA is considered to have good potential for the long term approach for ICT in education and in the wider community. The TA initiatives need to be further developed/supported as follows:

- Given the delays in implementation of the TA, there has been very little time for this TA to monitor the pilots and the impact on the schools and communities. Even though some data has been collected for assessing the impact more time needs to be given before any significant changes may be seen. The ongoing ADB RETA study may be able to continue with periodic training over the next 12 months and it would be useful for them (in conjunction with MESOC) to take up the data from the TA and conduct impact evaluations at the end of the RETA.
- MESOC has to fully engage and make budget allocations and provide staff to support the project.
- As per the Prime Minister's request, negotiations with UN regarding expanding the SchoolNet in place of their e-bus project should be pursued. Any further support and development of SchoolNet needs to have full donor coordination.
- Negotiation with connectivity companies for subsidizing costs for expanding the SchoolNet network should be undertaken.
- MESOC needs to consider "leapfrogging" in its curriculum development and in-service training approaches. ESP II should be used as a vehicle to expand digital/electronic information and data development, sharing and knowledge development.
- MESOC needs to monitor/support the pilots through 2006/2007 Samoa FY. This will provide the baseline information for future budgeting.

78. The above will provide a level of support to the SchoolNet. However, the key recommendation is that, in order for the success of this pilot TA to be sustained and to establish a much wider ICT in Education model across Samoa (something which could be a model to be replicated elsewhere in the world, certainly in the Pacific), there needs to be a clear, focused and sufficient follow-up, with monitoring, development/replication, support, adapting as necessary etc, to enable the SchoolNet program to continue and be expanded.

79. The recommended approach for this is for a further ADB TA which will pick up from where the TA and the ADB RETA has left off and work in tandem with the ESP II, as well as with any other donor initiatives. This should operate along the following lines:

- Phase I. This would need to consolidate the existing set up (schools/data center etc), replicate a few more schools, and also provide identification/assessment for (i) more schools to be brought on (in Phase II); (ii) community involvement; (iii) government involvement (financial commitment and other commitment) and public/private partnerships; and (iv) future investment (eg for replacing hardware).
- Phase II. This would then take up further schools and consolidate as much as possible. (Phase II could be contingent on Phase I - eg commitment from government - as a level of sustainability needs to become apparent. However, the full TA should be agreed at the outset to avoid gaps due to processing of TAs.
- It is not anticipated that all schools could be included by the end of Phase II – the expansion of the network needs to take account of such factors as connectivity availability and absorption capacity; it is not possible to move too fast. If the first two phases were successful, a further phase could be added. Depending on budget availability, the expansion would focus on secondary schools – given that ESP II proposes to provide the hardware (the major part of the investment) to a



large number of secondary schools; however, primary schools need to be included, for example to see the impact of ICT in education at an earlier age.

80. Without such specific support to the further consolidation and development of the SchoolNet, this further development could "fall through the mesh" if it is either not taken up at all or wrapped up into some other program without consideration of what these other programs can add specifically to SchoolNet and where there are gaps that need to be filled from other sources.

81. The consolidation of the existing set up is critical for the Phase I of the recommended approach, including further monitoring and support – IT support, CMAD/teacher training etc. The model should be adapted as necessary. Pilots on dial-up need to go to "full model" (wireless or comparable connectivity), as far as the roll out of the improved connectivity will allow.

82. Putting aside the above-recommended approach for an additional ADB TA, there are entry points for the ADB RETA and the ESP II project where they could support/integrate with the SchoolNet, to provide a coordinated approach and maintain momentum. Recommendations are given below; these could be adapted based on the resources available under the two other projects and also depending on when (or if) the recommended further ADB TA materializes. Either way, a coordinated/integrated approach is essential.

C. Entry points for further support for SchoolNet

1. RETA Project within existing TOR and/or from contingency funds

Training. Under SchoolNet, due to procurement and installation delays, training was significantly compromised. RETA training can make an extremely useful contribution to progressing ICT education interventions initiated under the SchoolNet. Providing extended training is critical to the sustainability of the SchoolNet and the first holistic approach to ICT intervention in the Pacific. Further training is critical as the majority if not all teachers started from a very low level of ICT competency.

- SchoolNet training programs may be used to reinforce the knowledge and skills introduced under SchoolNet.
- On-going mentoring with periodic intensive sessions of 1-2 days could be the approach as it provides reflection and practice time before the next sessions.
- Capacity development at CMAD to take ownership and lead the issue of ICT in schools.
- Given that RETA is planned to end by December 2007 this training support may be delivered for at least six months in 2007.
- Only after such extended training will any impact evaluation be meaningful.

Monitoring and Evaluation. Under SchoolNet there was not sufficient time for the intervention to have any meaningful evaluation. The baseline data on community and teachers ICT capacity collected under SchoolNet may be used and further post-intervention data collected after July 2007 to assess the impact.

- Review indicators identified and baseline data for community capacity collected under SchoolNet.
- Evaluate the network systems against the key performance and sustainability indicators for the connectivity and network developed under the SchoolNet¹⁵

¹⁵ See Appendix 7 for draft indicators.



- Include evaluation of actual learning outcomes to complement self reporting and other survey instruments for teacher training.

2. ESP II Project

MESC Capacity Development

IT Capacity building at MESC: Realigning ICT roles and functions of relevant departments in MESC into an integrated ICT Framework for Teaching and Learning. It should be noted as one of the key enablers of education reform in Samoa. Provide advice and assistance to:

- develop an integrated ICT framework for phased implementation;
- develop and implement an equipment procurement plan with ESP II being the first step;
- develop and implement a staff development plan to manage the integrated system;
- develop policies for content creation, authentication and dissemination;

CMAD: This is the key department tasked with developing a curriculum framework and teaching/learning resources for primary and secondary education. This department needs staff development in ICT application and processes to become competent with ICT-driven curriculum development and evaluation, e-assessment to complement other processes currently used, to increase efficiency, and increase the production and dissemination of teaching and learning resource materials.

Requirements are:

- Staff training in developing e-learning materials.
- Information dissemination and sharing examples of best practice etc.
- Resourcing CMAD with upgraded equipment.
- Wireless connection linking CMAD to SchoolNet.
- Curriculum development concept to include ICT skills embedded in existing subjects.

Teacher Continuous Development: This department in collaboration with CMAD is charged with the responsibility for training teachers to use the new curriculum resources/learning objects etc. QA for the teacher training is monitored by this department. Pre-service teacher training should include basic computer skills as an embedded skill in their training. Attempts should be made to have all in-service training with formal credits to have electronic versions of the training materials that may be uploaded to the SchoolNet portal for all teachers to access. All continuous professional development which is the responsibility of MESC teacher development departments should also start online delivery and discussion forum reporting etc.

Requirements are:

- Staff development in providing online training and support.
- Moderating and monitoring teacher discussion forums.
- Resourcing teacher resource centers with computer equipment.
- Wireless connection to the SchoolNet.

ESP II Schools

Standardization: Considering that a number of schools will receive a set of computer equipment, MESC has to ensure that all equipment supplied under the project is standardized. This will be an enormous help in managing an efficient maintenance and support system. Advantages include: (i) having a large quantity of standard



equipment will encourage local suppliers to carry spares – therefore making it easy to obtain spare parts locally; and (ii) capacity development of MESC staff plus the suppliers with the hardware will make it simpler and more efficient during trouble shooting. Requirements are:

- Need to provide technical and policy advice in design and procurement of equipment to match the SchoolNet facilities.

Wireless Connectivity to SchoolNet

All schools receiving equipment under the project may be linked to the SchoolNet. The schools will benefit from accessing all curriculum materials on the portal and using the VPN to communicate locally. This will also encourage MESC to actively engage in developing and providing e-learning materials. Linking with the SchoolNet will also provide monitored access to the internet and contribute to building the user number and sharing costs of the SchoolNet network. Requirements are:

- Wireless connection at the school sites.
- Provision made at the Data Centre to linking the new schools.
- Data Center management costs plus other recurrent costs.

Solar Electricity Supply

For sustainability of any ICT intervention, recurrent expenses are usually a constraint. For the ESP II schools the computer room/learning centers should explore alternative less expensive/free energy sources. Requirements are:

- Conduct an assessment of electricity consumption in one of the SchoolNet sites and do a cost/benefit analysis of installing a solar electricity supply (possibly ask Datec to do this task).
- If favorable, supply all ESP II schools with solar electricity supply.

Teacher Training

The SchoolNet model encourages teachers to use ICT in their teaching, assessment and personal professional development. Teachers need to appreciate that ICT can greatly help them with making their class interesting and eventually cut their preparation time. Requirements are:

- In-service training – possibly refine/adapt SchoolNet training
- Encourage teachers in ESP II and SchoolNet schools to share their lessons and experiences.
- Gradually develop a critical mass for the ICT to grow without need for continuous inputs from donor-funded projects.
- Developing a repository of good classroom practices in areas that are currently lacking among in-service teachers.

Appendix 1: TA Chronicle 2005/6

- March 2005 - Initial in-country input by the TA team, situational analysis and design connectivity, training program, community appraisal.
- April 2005 - Develop technical specifications for procurement.
- May 2005 - Seek connectivity design approval from ABD and EA
- June 2005 - Tenders invited from short-listed companies. Training plan submitted to ADB/EA for approval. Tripartite meeting held, inception report accepted.
- July 2005 - Review bids to adjust proposed costs to project budget.
- August/September 2005- In-country input by TL and HCG/ANZDEC to revise the connectivity design to a hybrid wireless broadband and Data Center services. Provision of recurrent cost for FY06/07 and development of a portal agreed by ADB/EA.
- Oct 2005 - Provision of short and long term financial commitment for recurrent costs gets Cabinet approval. SchoolNet management models framework supplied to pilot schools. Revised personnel and activity schedule submitted to ADB/EA for approval.
- Nov 2005 - Revised bid invited, reviewed. Training plans revised with changed timelines. Social sector baseline data collection ongoing. Changed connectivity design required revising list of pilot schools.
- Dec 2005/Jan 2006 - Bids received from suppliers and processed. Training materials development bids processed and contract issued.
- March 2006 - Equipment and connectivity contracts issued. Procurement in progress.
- April/May 2006 - Further negotiations with suppliers on substitute products. Procurement and delivery delays by suppliers. Follow-up with training materials development.
- June 2006 - EA approval for exemption on duties and taxes. Site visits to ensure rooms are ready for delivery and installation. 2nd Tripartite meeting conducted & interim report adopted. Change from MS SharePoint portal platform to Moodle due to cost implications.
- July/Aug 2006 - In-country input by CE to supervise and test installations. TL to follow up with management models and training materials development, portal development. ITC commenced training the trainers.
- Sept/Oct 2006 - In-country input by TL to review the LAN systems for stability and speed, review procurement and finalise all adjustments required, plus content for portal. Training by both the ITC and local suppliers in progress. Contract issued to a local supplier for content creation for sub-portals.
- Nov/Dec 2006 - Final Tripartite meeting and Draft Final Report agreement. Review of pending connectivity, portal issues, training issues, management model, community baseline impact, monitoring and evaluation. Final consultancy inputs completed.

Appendix 2: Procurement Packages

- Package 1: SSN 01-SC IT - School Information Technology Equipment, Software, Installation, Testing and Commissioning, Training and Documentation
- Package 2: SSN 02-SC OM - School Office Machines, Delivered, Setup, Training and documentation
- Package 3: SSN 03-SC FUR - Schools Ergonomic Furniture, Delivered, Documentation
- Package 4: SSN 04-ME DC - Data Centre, Software, Installation, Testing and Commissioning, Training and Documentation
- Package 5: SSN 05-PTL – Education Portal Design, Upload, Testing and Commissioning, Training and Documentation
- Package 6: Supply of Data Communications Network, Internet Access, Network Management and Data Centre Facility

Appendix 3: Checklist for Technical and Procurement Aspects of a SchoolNet Project

Preamble

The Samoa SchoolNet and Community Access Pilot Project implemented in 2006, provides highly useful guidance for the procurement and 'rollout' stage of comparable projects. Following is an extensive but not necessarily complete list of Key Questions which should be asked during project planning and rollout.

(A) MESC

For each school involved in the project and for the MESC office itself:

1. Is the proposed room for the Learning Centre decided and is it definitely suitable as a Learning Centre.
2. Do the doors have handles and locks in good working order.
3. Can the windows all be secured. Are any glass window panes broken.
4. Does the school have after-hours security surveillance.
5. How many power points exist in the room proposed as the Learning Centre and where are they located.
6. Is the telephone line installed in the room proposed as the Learning Centre. (This is needed for two purposes (i) 'help' calls to the Ministry or the service providers, (ii) for the fax line. For schools using dial-up to connect to the Wide Area Network an additional line is required)
7. Does the room proposed as the Learning Centre have (a) air-conditioning or (b) fans.
8. Has the room proposed as the Learning Centre actually been inspected by (a) MESC, (b) a member of the consulting team and if so what was their overall verdict. Did they have any reservations with regard to any of the above items or other items not listed.
9. For setting up user names and email addresses for staff, first obtain the list in electronic form for each relevant school. The list needs to be checked with the school Principal to ensure it is up to date.
10. Establish a policy for the overall domain name (e.g. SamoaSchoolNet.edu.ws) and for the individual schools (e.g. SchoolName.SamoaSchoolNet.edu.ws)
11. Establish a policy for staff user names (e.g. FirstName Surname) and email addresses (e.g. Surname.FirstName@ SamoaSchoolNet.edu.ws) and initial passwords (eg based on the person's date of birth – ddMmmyy – e.g. 14Oct81)
12. Establish a policy for students user names (e.g. FirstName Surname) and email addresses (eg Surname.FirstName@SchoolName.SamoaSchoolNet.edu.ws) and initial passwords (eg based on the person's date of birth – ddMmmyy – e.g. 14Oct91)
13. Develop a brand for the network, its applications, the portal etc.
14. Produce a ring binder for the project which can be given to the Principal and IT Support teachers at each school
15. Have signs made for the door of each Learning Centre room e.g.

SamoaSchoolNet and Community Access Pilot Project

Funded and supported by the Asian Development Bank, and supported by the Samoan Ministry of Education and the Ministry of Finance
2006

Project Management:

1. Has a valid and correct Gantt Chart/Project Plan been prepared and approved in-house by a competent technical person.
2. Has the Gantt Chart/Project Plan been approved in writing by the Communications Engineer or other approved person on behalf of the funding body

3. Has a valid communications plan been established to ensure that the relevant people inside and outside the organization will know on either a 'need to know', or 'nice to know' basis.
4. Have all relevant parties been informed at a suitable advance interval of the proposed key dates and times, and their concurrence sought to have relevant personnel available at the relevant dates/times.
5. Has a customer acceptance testing regime been determined and approved in writing by the Communications Engineer or other approved person on behalf of the funding body.

Public Relations and Communications:

1. Has a media publicity strategy and budget been planned and approved and advised to all relevant parties.
2. Have draft scripts, press releases, TV advertisements, etc been prepared, tried out and approved.

(B) WAN Supplier

For each school involved in the project and for the MESC office:

1. Is 240 Volt power available at the required location for the WAN equipment.
2. For wireless connections, have the physical dimensions etc of each antenna, and the channel frequency etc been decided and approved by a competent technical person. Has a site survey been done to establish line of sight.
3. Has the WAN connection yet been established to this site.
4. If yes, is it working as intended and were relevant baseline metrics gathered – eg S/N ratio, dB gain, latency, etc.
5. If no, has a site survey been conducted, and has the desired location of the antenna or other termination devices been decided upon.
6. Has the WAN IP addressing system been determined, documented, checked internally and approved by a competent technical person.
7. Has relevant information re the WAN IP addressing system been passed onto all relevant persons for comment, approval etc.
8. Has relevant information re the WAN IP addressing system been passed onto the suppliers responsible for provision of LANs, portal, internet gateway, etc.

Procurement and delivery:

For each school involved in the project and for the MESC office itself:

1. Have ALL components been determined.
2. Have ALL components been approved in writing by the Communications Engineer or other approved person on behalf of the funding body.
3. Have ALL components been ordered.
4. Have all relevant license requirements been identified.
5. Have all relevant licenses been obtained and confirmed as correct in terms of type, number, etc.
6. Have any items been overlooked including connection cables, printer cables, consumables, etc.
7. Have all relevant customs/duty clearances been requested in writing.
8. Have all relevant customs/duty clearances been obtained.
9. Have ALL components, licenses etc been delivered to the supplier's warehouse in Apia.
10. If yes, have ALL components been inspected and approved as fit for purpose.
11. Has an inventory list been prepared ready for signoff by the School Principals.

Project Management:

1. Has a valid and correct Gantt Chart/Project Plan been prepared and approved in-house by a competent technical person.
2. Has the Gantt Chart/Project Plan been approved in writing by the Communications Engineer or other approved person on behalf of the funding body.

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3. Has a valid communications plan been established to ensure that the relevant people inside and outside the organization will know on either a 'need to know', or 'nice to know' basis.
4. Create an 'Issues Register' pro-forma for the Ministry, Consultant, each main supplier and the schools.

Logistics:

1. Has a valid and correct Gantt Chart/Project Plan been prepared and approved in-house by a competent technical person.
2. Has the Gantt Chart/Project Plan been approved in writing by the Communications Engineer or other approved person on behalf of the funding body.
3. Has a valid communications plan been established to ensure that the relevant people inside and outside the organization will know on either a 'need to know', or 'nice to know' basis.
4. Has the requisite transportation been ascertained for delivery of supplies to each site and is this transportation safe for the nature of the equipment to be transported.
5. Is a suitable driver available for the day and time.
6. If ferry or air transport is involved, has a firm booking been made and all relevant parties informed accordingly.

(C) Supplier responsible for provision of LANs**For each school involved in the project and for the MESC office itself:**

1. Has the LAN/WAN connection yet been established to this site.
2. If yes, is it working as intended and were relevant baseline metrics gathered.
3. If no, has a site survey been conducted, and has the desired location of the communications cabinet, UPS, etc been decided upon.
4. For wireless systems, have the physical location and the channel frequency etc been decided and approved by a competent technical person.
5. If existing PCs or switches are to be networked, ensure that their suitability has been assessed for each device.
6. Is 240 Volt power available at the required location for the communications cabinet and all other equipment.
7. Has the LAN IP addressing system been determined, checked internally and approved by a competent technical person.
8. Has relevant information re the WAN IP addressing system been documented and passed onto all relevant persons for comment, approval etc.

Procurement and delivery:

1. Have ALL components been determined.
2. Have ALL components been approved in writing by the Communications Engineer or other approved person on behalf of the funding body.
3. Have ALL components been ordered.
4. Have all relevant licenses been identified.
5. Have all relevant licenses been obtained and confirmed as correct in terms of type, number, etc.
6. Have any items been overlooked including connection cables, consumables, etc.
7. Have all relevant customs/duty clearances been requested in writing.
8. Have all relevant customs/duty clearances been obtained.
9. Have ALL components, licenses etc been delivered to the supplier's warehouse in Apia.
10. If yes, have ALL components been inspected and approved as fit for purpose.
11. Has an inventory list been prepared ready for signoff by the School Principals.
12. Has each software package been installed on the appropriate server(s), and has the license registration process been completed in conjunction with a school representative.

**Equipment Test Bed:**

1. Has a test bed replicating the first proposed installation been set up at the supplier's premises or other agreed location.
2. If yes, have all relevant components of equipment been assembled.
3. Were any missing components or faulty/unworkable/unsuitable components detected.
4. If yes, has corrective action been taken and has the Communications Engineer been informed of any significant problem and the supplier's preferred solution to the problem.
5. If yes, has an escalation path been set in motion and has it produced the expected outcome.
6. Have all relevant software packages been loaded on the server(s) and activated/registered on behalf of the relevant site.
7. Has the exact means for school staff and students to access email been determined, set up and pre-tested.

Project Management:

1. Has a valid and correct Gantt Chart/Project Plan been prepared and approved in-house by a competent technical person.
2. Has the Gantt Chart/Project Plan been approved in writing by the Communications Engineer or other approved person on behalf of the funding body.
3. Has a valid communications plan been established to ensure that the relevant people inside and outside the organization will know on either a 'need to know', or 'nice to know' basis.
4. Has a comprehensive training plan been prepared for MESC and school staff.

(D) Supplier responsible for provision of central services – data center, portal, Internet, anti-virus, anti-spam, filtering etc**Procurement:**

1. Have ALL components been determined.
2. Have ALL components been approved in writing by the Communications Engineer or other approved person on behalf of the funding body.
3. Have ALL components been ordered.
4. Have all relevant licenses required been identified.
5. Have all relevant licenses been obtained and confirmed as correct in terms of type, number, etc.
6. Have any items been overlooked including taking fixtures, connection cables, consumables, etc.
7. Have all relevant customs/duty clearances been requested in writing.
8. Have all relevant customs/duty clearances been obtained.
9. Have ALL components, licenses etc been delivered to the supplier's warehouse in Apia.
10. If yes, have ALL components been inspected and approved as fit for purpose.
11. Has a rack layout drawing been prepared.
12. Has a tape backup schedule been prepared and approved and approval obtained for the proposed arrangements for off-site archiving of back-up tapes.
13. Has each software package been installed on the appropriate server(s), and has the license registration process been completed in conjunction with a school representative.
14. Has the content filtering been tested at the data centre end as "fit for purpose".

Equipment Test Bed:

1. Has a test bed replicating the proposed installation been set up at the supplier's premises or other agreed location.
2. If yes, have all relevant components of equipment been assembled.
3. Were any missing components or faulty/unworkable/unsuitable components detected.

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4. If yes, has corrective action been taken and has the Communications Engineer been informed of any significant problem and the supplier's preferred solution to the problem.
5. If yes, has an escalation path been set in motion and has it produced the expected outcome.
6. Have all relevant software packages been loaded on the server(s) and activated/registered on behalf of the relevant site.
7. Has active Directory synchronization been set up and properly tested from the schools to the data centre and vice versa.

Project Management:

1. Has a valid and correct Gantt Chart/Project Plan been prepared and approved in-house by a competent technical person.
2. Has the Gantt Chart/Project Plan been approved in writing by the Communications Engineer or other approved person on behalf of the funding body.
3. Has a valid communications plan been established to ensure that the relevant people inside and outside the organization will know on either a 'need to know', or 'nice to know' basis.
4. Has a comprehensive training plan been prepared for MESC and school staff.

(E) Miscellaneous

If an overnight stay is required during installation or support, pre-book accommodation and provide staff with petty cash and purchase orders.



Appendix 4: SchoolNet Management Model (including CAP)

This document provides a framework to be used by the pilot schools in setting up their management models. Each school should use this framework and develop details of their respective models as appropriate to their local context. It is absolutely essential the management models is developed and adopted by the end of August, 2006. The project contribution toward the agreed recurrent expenses under the project for each school will be conditional to the SchoolNet Learning Centres submitting their Management Plan.

The management plan should have three distinct areas; (i) Management issues; (ii) Administrative issues and, (iii) the Business Plan

A: Management Issues

1: Purpose of Samoa Schoolnet and Community Access Project

[Describe the purpose of the project -sample below]

In a free and democratic society, access to information is a fundamental right of citizenship. Electronic technology and information resources offer multiple opportunities of educational value. The Government of Samoa and MESC supports access by students and staff to rich information resources and encourages staff and students and the broader community to develop the information research skills necessary to analyse and evaluate such resources.

Samoa Schoolnet is provided for students, staff and community members to collaborate, produce, publish, conduct research, and to communicate with others on a local, national, and international level. In return, every Samoa Schoolnet user is expected to use these resources for educational purposes only, to act in a responsible, ethical, and legal manner; and to conform to network etiquette that includes being polite, using appropriate language, and respecting privacy.

2: SchoolNet Learning Center Location and Membership of the management committee

a) School and Community Location

[School name and year]

[Full school address]

[School Principal] [contact details]

[School President] [contact details]

b) Schoolnet and Community Access Project Management Committee

[SSNCAP President] [contact details]

[SSNCAP Treasurer] [contact details]

[SSNCAP Secretary] [contact details]

[Committee member 1]

[Committee member 1]

[Committee member 1]



c) Schoolnet and CAP Administrators

[teacher 1] [contact details]

[teacher 2] [contact details]

[community member 1] [contact details]

[Samoa Schoolnet and Community Access project use policy- sample below]

3: Student use policy for Samoa Schoolnet

The Vaitele-uta Primary school's computer network provides access to electronic resources and to the Internet. The Samoa Schoolnet consists of networked computers in schools (with access to community). The Internet is a collection of electronic networks connecting computers within the district, and around the world. Vaitele Primary School holds a view that "... a person's right to access Internet resources should not be denied or abridged because of origin, age, background or views." Students and staff on Samoa Schoolnet have access to any or all of the following:

- 1) Electronic mail (E-mail) communication
- 2) Information and news from a wide variety of sources and research institutions
- 3) Discussion groups on a wide variety of curriculum-related topics
- 4) Opportunities to publish classroom-related projects on the LAN, WAN and the World Wide Web
- 5) Opportunities to use multimedia in teaching and learning processes

The Samoa Schoolnet has taken reasonable steps to ensure that the networks is used only for activities that support the curriculum or one's professional role. Users should not expect privacy through e-mail, Internet usage, or created documents. The Samoa school net through the MESC Information Technology division will monitor individual use of all computer systems as needed. However, total security on such a far reaching system is imperfect and impossible to achieve. Realistically, school computers can be used inappropriately if one is persistent. Using the network is a privilege and may be revoked at any time for unacceptable conduct.

Unacceptable conduct includes the following:

1. Using facilities of the learning centre and the network for illegal activities, including plagiarism, copyright or contract violations.
2. Using the network for advocating for ballot measures or political candidates without the approval of the management committee.
3. Accessing or exploring on-line locations, materials or on-line games that do not support the curriculum and/or are inappropriate for school-related work.
4. Downloading, installing, or executing unlicensed or unauthorized software.
5. Vandalizing and/or tampering with equipment, programs, files, system performance or other components of the network, including copying, distributing, or modifying copyrighted software.
6. Causing congestion on the network or interfering with the work of others, e.g., chain letters, broadcast messages to lists or individuals, modifying or deleting files.
7. Attempting to infiltrate, or "hack" into any computer system or network, or interfering with another person's ability to use that system, including password sniffing and/or port scanning.
8. Sending, or receiving materials that are pornographic, obscene, or x-rated.



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9. Use of unauthorized fee-based services on the Internet.
10. Intentionally wasting finite resources, e.g., on-line time.
11. Gaining unauthorized access to the learning centre to use the equipment and to sites anywhere on the network.
12. Revealing the home address or phone number of another person; or, if a student, revealing one's own home address or phone number.
13. Invading or violating the privacy of other individuals and/or their information.
14. Using another user's account or ID card or allowing another user access to your account or ID.
15. Sharing your password either knowingly or carelessly, or failing to conform to Samoa Schoolnet directives for password change and creation.
16. Coaching, helping, observing or joining any unauthorized activity on the network.
17. Using e-mail, as a student, for other than school-related purposes.
18. Posting anonymous messages, unapproved web pages, or unlawful or libellous information on the system.
19. Engaging in sexual harassment or other objectionable activities in public or private messages, e.g., activities that are abusive, sexually explicit, threatening, demeaning or using objectionable language.
20. Falsifying permission, authorization or identification documents.

Violations of the Acceptable Use Policy, or any wilful act designed to disrupt information technology, will result in disciplinary or legal action and may result in a loss of access to Samoa Schoolnet. Parent(s) and guardian(s) are responsible for setting the standards for members of their family. Therefore, we support the right of each family to select or refuse Internet access for their student.

By Order of School Principal

[Samoa Community Access Use Policy]

4: Community use Policy for Samoa Schoolnet & Community Access

The Community Learning Center is for the benefit of the Vaitele-Uta community. The office technology provided by the Centre together with the VPN network system will enable the community to advance to the information and technological world of today. They can learn, use and benefit from the productivity tools and enhance the education and lifestyle.

Given that the significant financial and social investment have been made to establish the Community Learning Centers, violation/unacceptable use of the Community Learning Centre by members will result in disciplinary action up to and including revocation of membership and criminal prosecution.

All users are expected to behave responsibly and with consideration for other users at all times. They should take care of the technological equipment and report any misuse they witness. It's the responsibility of the whole community to support, maintain and also benefit from the Community Learning Center. The Acceptable Use Policy below clarifies what the SSNCAP management deems reasonable use of the Community Learning Centre.

Unacceptable conduct includes the following:

1. Use of the VAITELE-UTA Community Learning Centre to gain unauthorized access to the other systems is prohibited.
2. All users must pay for the service before using. Paid members may have accounts to pay for their usage. These accounts should be paid off each month.
3. All material placed on the SSN CAP Net is the responsibility of the user or organizations that requests uploading.
4. Users are solely responsible for all activities traced to the users account.



5. Sending unsolicited e-mail and/or posting inappropriately to newsgroups (spamming) is not acceptable. (i.e. Do not send junk mail, solicitations, chain letters, or cross-post excessively to multiple newsgroups!)
6. Information shall be provided in a non-intrusive manner.
7. Businesses may make use of the Community Learning Centre as a way to locate themselves on the Internet. Businesses are encouraged to also use other technological services provided by the Centre.
8. Direct paid or broadcast advertising or information containing only catalogue listings and pricing are not acceptable uses.
9. Community activities and Non-profit organizations may provide information as to their membership, publications and other activities.
10. The Community Learning Centre reserves the right to either levy extra fees or disable (but not delete or modify) pages where the demand for that page impacts the Community Learning Centres ability to handle the systems regular workload.
11. A specific contact person must be identified as being responsible for information by the business in order for the account to be opened or information upload to the network.
12. Any use of the Community Learning Centre for unlawful purposes is prohibited.

Any violation of the above Use Policy by a member may result in the revocation of membership privileges and/or termination of the account and may also be subjected to criminal prosecution.

By order of the President- Schoolnet & CAP Management

5: Role of the SSN&CAP Management Committee

The management committee will be responsible for the development, implementation and monitoring of appropriate management plan for ;

- i) the safe keeping of the equipments and making provision for regular maintenance;*
- ii) appoint CLC administrator and other personnel as required;*
- ii) ensuring supervised access to the Learning Centre at all times;*
- iii) developing revenue generating capacity to make the Learning Centre self supporting;*
- iv) procuring and maximising the use of consumables;*
- v) keeping records of all income and expenditure related to the Learning Center.*
- vi) developing and adopting appropriate use policies for the school and community users.]*

The committee will hold monthly meetings to discuss matters relating to above functions. Minutes of these monthly meeting will be kept as record of discussions and actions taken for audit and future planning. Copies of the minutes will be submitted to MESC Operations division

B: Administrative Issues

1. Daily Opening and Facilitating the Use of CLCs

a) Schoolnet Administrators

The administrator(s)/teacher (s) will be the person in charge of the Learning Centre during school hours (8.30am - 4.00pm Mon-Fri). They will;

- Supervise students using the facilities, assist other teachers with using the equipment and the network.
- Appoint CLC administrators to assist the Management Committee in activities to meet the objectives of the Business Plan.
- Set up and maintain a logging system/sign up for the users of the computers and other equipment.
- Show users and other staff how to use all of the Centre's equipment.
- Assist users who wish to enrol for distance education courses.

- Liaise with educational organisations and other organisations in the community.
- Arrange tutorial and study assistance if this is required. Eg the NUS can offer tutorials through these Learning Centres.
- Maintain suitable records for the Learning Centre.
- Upload information to the server and maintain the school portal

b) Community Access

The administrator/community (most likely a committee member) will be in charge of the Learning Centre after school hours. If a school teacher is appointed then some remuneration (could be in kind) needs to be considered. The proposed timetable for community use is M-F 4.30-7.30pm except Thursday and Sat 8.30am -1.00pm. This will be ratified by the Management Committee and the community will be advised of this. They will;

- Together with the Management committee, formulate, develop and review policies and procedures relating to membership of the Learning Centre, usage, data collection, financial management, and other operations of the Learning Centre.
- Advertise the services offered by the Learning Centre- Develop and maintain a database of community skills.
- Advise the Management Committee of any future equipment and service requirements.
- Develop and maintain a database of potential funders of the Learning Centre.
- Seek on-going funding for the Learning Centre by sending out fundraising applications, applying for government grants, etc.
- Initiate and maintain revenue generating (money earning) programmes to achieve self-sufficiency for the Learning Centre.
- Provide information, assistance and advice to Learning Centre users.
- Take responsibility for the administration of any money that is paid into the Learning Centre on a day-to-day basis.

2). Procurement of Supplies

a) Considering that costs of consumables related to of ICT and office technologies is very high in Samoa it will be prudent to use collective purchasing power to obtain better prices. All Learning Centres will have to develop and plan forward to put their orders in for supplies with MESC so they can bulk buy the items. There is the need to be careful how forward you plan as some of these consumable items have a limited shelf life.

Given that the CLC are a joint school and community enterprise the costs will have to be shared.

- Every year the principal will write to MESC justifying for increased allocations for supplies such as paper, printer ink, toner etc over an above their quotas supplied by MSC. Currently MESC provides certain stationary free to school. This service can be expanded to include items needed for the SchoolNet for a minimal cost
- Even if the consumable are supplied by MESC at minimal cost the CLC will have to contribute financially towards this upfront cost. Some of which may be recovered through the user pays services offered by the CLC.

The management committee with the guidance of the principals and the SchoolNet administrators will ensure that sufficient expandable resources are available at all times.

b) Electricity, telephone and internet charges will also need to be carefully managed. It is hoped the these costs will gradually come down but for now the telephone charges for the dial-up site can be high. Again careful mapping in the first year is needed to plan and budget for future years, some form of log for these expenses will be useful.

NB- For the first year all supplies will be provided and paid for by the project. The supplier CSL has been advised of the process for supplying the consumables on a quarterly basis.



3). Revenue Collection, Recording and Reporting

The Learning Centre will operate as an organisational entity within the Government of Samoa's Public Sector guidelines. It will report to the MESC. It will maintain a separate bank account from the school which will be opened at a commercial bank. The financial management procedures shall comply with MESC and the PSC guidelines. Annual reports together with the financial statement will be supplied to MESC for audit purposes. The management committee will develop annual budget plan to manage income and expenditure to meet operational costs and any new development initiatives.

The Schoolnet and community access administrators will be responsible for collecting and accounting for all revenue related to CLC services. They will report on this to the Management committee at the monthly meetings. Larger grants, donation etc will be the responsibility of the SSNCAP management committee.

The SSNCAP management committee will develop forms, procedures, protocols for collecting and accounting fees etc.

4). Maintaining Records of Technical Specification and Warranties

For all equipment supplied under the SSNCAP project the management committee will receive a folder (Assets Register) with all standard records of the equipment and facilities. However, for all future equipment you will need to use something like the sample form in the appendix for recording equipment details.

5). Addressing Faults and Complaints

In order to avoid a service breakdown, all faulty equipment must be attended to immediately. For the first year all equipment is under warranty and the suppliers Datec and CSL will attend and make good the faults as per their contracts. Any improper use of the equipment and the network is not covered under warranty and will be fixed at a cost to the Learning Centre. Please read equipment manuals carefully and when not sure ask the administrator.

Wireless connectivity

For all wireless connectivity technical problems including phone systems the administrators will contact CSL directly but inform MESC so that a database can be maintained to monitor network performance. With regards to phone service, the administrator will follow the above procedure but may have to also contact SamoaTel to follow up and speed up the process.

Equipment Faults

For faults and breakdown regarding office technologies the administrators should again contact CSL. The phone number is XXXX and the contact person is XXXXX

For faults and breakdown regarding the local area network, the computers and thin client the administrator should contact Datac. The phone number is XXX and the contact person is XXXXXXX

Recording faults must be clear and detailed with nature of fault, date and time when you requested for service, as well as the time taken to repair the faulty equipment. This information should be included in the monthly report to the Management Committee and to MESC. This is important because if a supplier fails to provide the agreed level of service level, the reporting will allow the MESC and the Management committee to apply pressure on the suppliers – there maybe a penalty or financial compensation as noted in the service agreement.

NB: Any equipment taken out of the CLC by the Service Company or anyone for that matter must be signed by the person taking it and approved by the administrator or the Principal.

C: Business and Strategic Plan

The sustainability of the Learning Centre will depend on the management committee's ability to anticipate, plan and manage current activities of the CLC plus for further expansion. The Center management committee will have to be proactive to expand and or invite users and others.

Other than the management matters, under the Business and Strategic plan there are two key issues;

Income generation: Given the socio-economic climate of many of the pilot schools/communities the aspect will perhaps be the most critical for sustainability. Appendix 2 has some activities that may be undertaken to generate income. The policy and procedures adopted for income generation should comply with the regulation of MESC and the GoS.

Expenditure: This can be of two types, the essential and discretionary. The essential expenses are those that are a must to keep the Learning Centre up and running for example staff salary, electricity costs, internet charges etc. Other costs such as paper, toner and ink can be budgeted depending on the available funds. This will require careful planning and monitoring.

The above 2 sets of information should be developed and mapped out for short term (1 year) and medium term (2-3 years). For the first year the recurrent cost will be meet by the project (the paper, in cartridges, toners, internet charges will be fully paid for but electricity and phone will be subsidised to compensate for the increased costs incurred by the Schoolnet and CAP.

Since the first year will be paid for the Schoolnet and CAP, it will provide real data to and actual costs for projecting income/expenditure for the next 2-3 years. While the first year costs will be support through the project, the management committee may choose to introduce fees to generate some funds from year one. This is a decision for the management committee.

Risk Management

There are several issues that are vital for the continued sustainability of the Learning Centres.

Some of these are;

- 1) The capacity of the local community to meet the recurrent costs. For the first year the project will support this cost which will provide a good opportunity to obtain some rigorous estimates. What contingency plans are in place should costs blow out?
- 2) Maintenance and help desk is a significant part of the SchoolNet sustainability. All hardware is covered under warranty for the first 12 mths and the wireless net is covered for 3 years by CSL. After the first year the CLC Management committee will need to plan for how to deal with maintenance and help desk support
- 3) High turnover of trained ICT personal from public to private sector is of concern in most developing countries and can be critical for the sustainability of CLC
- 4) Loan equipment to community must not be entertained at any cost. From lessons learnt in other projects and different cultural practices it is best not entertained at all.

Market Potential

The CLC management committee should identify key opportunities for their services and actively market the opportunities.



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ANNEX 1 – SAMPLE OF FORMS**SAMPLE EQUIPMENT REGISTER****NAME OF SCHOOL**

General		
	Item	
	Description	
	Model	
	Manufacturer	
	Serial number	
	License number (if any)	
	Parts (e.g. software)	
Purchase		
	Purchase price	
	Date of purchase	
	Purchase order number	
	Purchaser	
	Purchase authorised by	
Supplier		
	Name	
	Postal address	
	Physical address	
	Telephone	
	Fax	
	E-mail address	
Warranty		
	Type of warranty	
	Warranty period	
	Commencement	
	Expiration	
	Extended warranty period	
	Commencement	
	Expiration	
Maintenance		
	Maintenance company	
	Type of contract, service	
	Telephone number	
	Fax	
	E-mail address	
	Type of contract	
	Contract period	
	Expiration	
Various		
	Notes	



TEMPLATE FOR INCOME- EXPENDITURE PLANNING

Income generation estimate only

Item	<u>unit cost</u>	<u>qty need</u>	<u>total income 2006</u>	2007	2008
email usage	\$20/30 min	100hrs	\$200		
printing					
photocopying					
training workshop					
multimedia services					
word processing					
accounting spreadsheets					
levy on school fees					
donation/fund raising					
Total	<u>xxx</u>		<u>xxxx</u>		

Budgeted Expenditure

	Unit cost	Qty	Total Expenditure 2006
staff salary			
electricity			
telephone			
internet cost			
paper			
photocopy toner			
printer ink			
maintenance			
licences			
HW & SW upgrading			
contingencies			
			<u>xxx</u>

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DAILY RECORDING AND REPORTING OF ACTIVITIES

Paid services	Number	Amounts
Customer visits		
Calls made		
Faxes received		
Faxes sent		
Copies made		
Sheets scanned		
Pages printed		
Hours computer usage		
Internet and e-mail		
Total revenue		
Missed payments/run-aways		
Total revenue		

Expenses	Amounts
Deliveries of expendables, spares, etc.	
Telephone	
Rent	
Water and electricity	
Stationery	
Salaries/wages	
Security	
Petty cash	
Sundry expenses	
Cleaning	
Other office cost	
Totals	

Cash operations	Amounts
Cash position at opening	
Amounts received (= totals services above)	
Cash withdrawal from bank	
Cash deposits to bank	
Payments made (total expenses above)	
Calculated cash position	
Realised cash position at closure	
Cash difference	

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SAMPLE MONTHLY REPORT FORMS

Monthly income statement		
Learning Centres:		Month:
Services	Number	Income
Telephone calls made		
Telephone calls received		
Faxes sent		
Faxes received		
Photocopies		
Scanner		
Computer printing		
Computer usage		
Internet and e-mail		
Hire for training workshops		
Total income		

Monthly expense statement		
Learning Centres:		Month:
Categories	Number	Income
Telephone/fax		
Rent		
Water and electricity		
Stationery		
Salaries/wages		
Security		
Petty cash		
Sundry expenses		
Cleaning		
Repair of premises/furniture		
Repair of equipment		
Commodities and spares		
Various office expenses		
Total expenses		

Monthly cash flow statement	
Learning Centres:	Month:
Description	Amount
Cash position at start of month	
Total income, total amounts received	
Total expenses	
Bank deposits	
Bank withdrawals	
Payments to community	
Calculated final cash position	
Realised cash position at month's end	
Cash difference	

**SAMPLE FAULT REGISTRATION FORM**

Learning Centre fault registration form	
Name of Learning Centre	
Name of Learning Centre Manager	
Date and time fault recorded	
Fault description, equipment	
Recommended action	
Realised action by self	
Fault forwarded to supplier	
Date and time of forwarding	
Date fault settled	
Realised solution	
Complaint reported to	
Estimated damage	
Repair cost	
Special remarks or notes	

SAMPLE MATERIALS ORDER FORM

Learning Centre materials order form	
Name of Learning Centre	
Name of ordering Manager	
Date and time	
Ordered product and quantity	
Estimated price	
Supplier name	
Supplier telephone/fax	
Indicated delivery date	
Express delivery or not	
List of products delivered	
Quantity delivered	
Realised delivery date	
Realised price	
Special remarks or notes	



ANNEX 2 – BUSINESS PLAN IDEAS

Options for Income Generation (Indicative only)

The list below is a general set of categories, which can be used to define the way services can be itemised. The schoolnet management committee will have to determine the fee for services

Annual Community Learning Centre Membership (Membership could provide discounted services, priority access, e-mail address/web page etc.)

- Personal member
- Concession (students, retirees etc)
- Family
- Business
- NGO/CBO
- Government department.

Telephone

- Per unit
- Local
- National
- International
- Peak (daytime rates)
- Off-peak (evening rates).

Computer Assisted Training

- Per hour for individuals
- Per day for individuals
- Per hour for groups
- Per day for groups

Photocopying

- A4 Single-sided
- A4 Double-sided
- A3 Single-sided
- A3 Double-sided

Printing

- Text
- Graphics
- Full page colour
- Copy printing single-sided
- Copy printing double-sided Different prices for A3/A4/A5 paper size.

Faxing

- Send 1st page – local
- Send 1st page – national
- Send 1st page – international
- Send additional page
- Receive 1st page
- Receive additional page



Computer Access

- Per 15 minutes
- Per half-hour/hour
- Per day

Internet Access

- Per minute
- Per hour
- E-mail - per message
- Per month

Word Processing

- Per page
- Per hour

Desktop Publishing

- Per hour
- Per page
- Curriculum Vitae (full)
- Curriculum Vitae (1 page)
- Certificate (in folder)
- Certificate (no folder)
- Invitations
- Funeral programmes

Room Hire

- Per hour
- Per day

Scanning

- Greyscale
- Colour
- On disk
- Printed
- On CD-ROM

Laminating

- A4
- A3

Secretarial Services

- Per hour
- Per message
- Per day
- Per month

Other

- Folding (per 100 pages)
- Video tape hire
- Tape dubbing

Appendix 5: Summary of Community Capacity Baseline Data

Indicators	Vaitele-uta Primary	Vaimauga College	Lepa College	Amoa College	Mata'aevave College
Background Information					
Population	5,200	25,903	3,306	4,229	8,573
# of households	705	3,557	224	544	1,123
Essential infrastructure	Good	Good	Medium/Good	Good except for phone until Digicel arrived	Good
Socio-economic standards	High - has nearby Industrial zone. 2 miles from Apia CBD.	Medium/High, Has small businesses. 3 miles from Apia CBD.	Medium. Handicrafts, small retail, agriculture, fishing. Approx 32 miles from Apia CBD	Medium/Good. Govt offices, retail and agriculture business. 10 miles from Saleologa CBD.	Medium/Good Mix of agriculture /retail/ tourism. 3 miles from Saleologa CBD.
Source of livelihood	Salary and wages	Salary and wages	Subsistence economy	Mix of salary, subsistence farming and business	Subsistence economy
Social groups	Mainly church related	Matai councils, women committees and sport groups	Traditional Matai and family networks	Traditional networks and youth groups	Traditional networks and youth groups
Awareness of Technology					
1. Conventional technologies- landline phone, TV, DVD/video.	Most people in the community have some or all of these devices at home. Others have used it at work or other places.	Most people in the community have some or all of these devices at home. Some would have access to these devices in the workplace.	A very few people have some of these devices at home. Even fewer people who work in town would have access to these devices at work.	Very few people would have access to these devices at home. A few people who work in town would have access to these devices.	Some people in the community would have access to these devices at home. Those who work in Saleologa town would have access to these devices.

Indicators	Vaitele-uta Primary	Vaimauga College	Lepa College	Amoa College	Mata'aveave College
2. Computers and faxes	None of the people interviewed had either computers or faxes at home but many have used at work.	None of the people interviewed had either computers or faxes at home. A few have access to these in the workplace.	None of the people interviewed had a computer or fax at home. A very few who do work in town have access to these devices.	None of the people interviewed had a computer at home. A few have access to computers and faxes at work.	None of the people interviewed had a computer or fax at home. A few have access to computers and faxes at work.
3. New technologies-mobile phones and internet	Since the arrival of Digicel, mobile phone usage has increased exponentially. Very few people have used internet centers in Apia CBD.	The arrival of Digicel means that now people have access to mobile phones. A very few people have used an internet café.	Some people now have access to Digicel phones, but no knowledge of internet cafes.	Some access to mobile phones even before Digicel. A few have used the only internet café at Salelologa town.	Access to mobile phones now with Digicel. No one had used an internet café.
Financial Capacity 1. Pay phone bill, electricity bill	Majority of the people pay their bills in time. Small percentage fail to pay but act very quickly when they are disconnected.	Majority pay their bills on time. Some have problems with paying bills but they do try to pay on time	Majority find paying for electricity a burden but are getting used to it. Some try to minimize the use of electricity.	Majority find that paying for electricity is a matter of getting used to it and try to pay on time.	Some people have some problems with paying their bills. Others try their best so as not to be disconnected.
2. Pay for services offered by SchoolNet (including the CAP)	Majority indicated that they were willing to pay for services (average of WST10 weekly) based on value for money.	Quite willing to pay for services but need a good system.	Quite willing to pay but need to have good policies in place.	Willing to pay whatever is needed but needed to look at a good system.	All stated that they are willing to pay to use the services.
Expectation from SchoolNet 1. ICT education for children	This is the priority for this community.	This is the priority for this community.	This is the priority for this community.	This is the priority for this community.	This is the priority for this community.

Indicators	Vaitele-uta Primary	Vaimauga College	Lepa College	Amoa College	Mata-aeavae College
2. Types of services expected	Teaching and learning, word processing, communicate with people overseas, email and fax, pay bills, research/surf the net. Majority said weekly	Teaching and learning, word processing for land and titles petitions, email and faxes to relatives overseas. Majority said weekly	Teaching and learning, faxes and email overseas and locally, word processing, surfing the net. Majority said weekly	Teaching and learning, email and faxes to overseas relatives and friends, surfing the net. Majority said weekly	Teaching and learning, emails and faxes to relatives and friends overseas, surfing the net. Majority said weekly
3. Frequency of use by community	Majority said weekly	Majority said weekly	Majority said weekly	Majority said weekly	Majority said weekly
Community Access and CLCs					
1. Capacity to generate income	The school teacher and committee are keen and capable to develop and manage a business plan.	The principal had to convince the school committee but now there is commitment from the committee to devise a plan. Yet to devise a management model. Some concern about recurrent costs as they do not yet have enough information to go by.	School committee is quite keen to devise a good plan and system for access to community and to generate funds. Keen to get all policies drafted first. Being quite systematic about it Expecting a good management model when it is done.	Already has a plan to generate income. Needs to be strengthened and closely monitored.	Keen to get started on this plan in the beginning of 2007.
2. Management model	The uncertainty of the recurrent costs is causing a lot of anxiety. First draft developed; more work needed. The Committee members are highly educated and in senior private and public sector positions.	Yet to devise a management model. Some concern about recurrent costs as they do not yet have enough information to go by.	Keen to get all policies drafted first. Being quite systematic about it Expecting a good management model when it is done.	Some high recurrent costs eg high electricity cost was incurred before learning about logging off and disconnecting the internet. More aware now and expecting a good management model.	Yet to draft a management model.
3. Community access	Due to the delays, this has been mainly deferred to early 2007. However, the school committee who are all computer literate have started using the services.	Deferred to 2007 as this was the last school to be set up.	Deferred ol 2007 as focusing on strengthening the school capacity first.	Some training for the community has been carried out and initial activities by the community are being monitored.	Deferred till 2007 because of the delays.

Appendix 6: Baseline and Initial Impact Data
TABLE 1 - ICT Baseline and Post-Intervention Data

	Vaitete-uta Primary 19 teacher school		Vaimauga College 32 teacher school		Lepa College 14 teacher school		Amoa College 18 teacher school		Mata'aeavae College 16 teacher school	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
SchoolNet baseline and impact data										
A) # of teachers in the survey	14	7	18	8	14	5	17	15	13	8
B) % of teachers familiar with technology										
Phones-LL & Mob	78%	93%	72%	93%	64%	80%	85%	90%	76%	81%
TV/DVD	78%	78%	66%	87%	71%	100%	67%	86%	84%	100%
Camera	29%	86%	33%	62%	21%	40%	47%	60%	23%	50%
Fax	14%	29%	61%	75%	0%	25%	12%	20%	7%	25%
Computer	29%	100%	39%	87%	21%	100%	53%	100%	30%	100%
Internet	0%	43%	22%	100%	21%	100%	12%	67%	23%	63%
C) % of teachers using ICT at home										
1) Daily										
Phone-LL & Mob	39%	71%	55%	62%	50%	40%	70%	87%	65%	65%
TV/DVD	32%	50%	54%	74%	64%	60%	64%	70%	73%	56%
Camera	0%	0%	0%	62%	21%	0%	0%	6%	0%	38%
Fax	0%	0%	0%	62%	0%	0%	0%	6%	0%	0%
Computer	0%	43%	17%	0%	21%	40%	47%	27%	23%	50%
Internet	0%	43%	0%	0%	0%	0%	0%	0%	15%	20%
2) Weekly										
Phone-LL & Mob	11%	28%	20%	25%	25%	50%	9%	16%	19%	9%
TV/DVD	29%	22%	17%	20%	15%	30%	3%	16%	7%	38%
Camera	0%	29%	17%	12%	0%	20%	6%	20%	0%	0%
Fax	0%	0%	0%	12%	7%	20%	6%	6%	0%	25%
Computer	0%	29%	11%	20%	14%	60%	12%	27%	2%	38%
Internet	0%	29%	11%	20%	7%	40%	0%	20%	2%	38%

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	Vaite-uta Primary 19 teacher school		Vaimauga College 32 teacher school		Lepa College 14 teacher school		Amoa College 18 teacher school		Mata'aeavave College 16 teacher school	
D) # of teachers using ICT in teaching										
TV	2	7	3	5	4	9	7	13	2	5
DVD	0	7	4	5	2	11	6	11	0	6
Computers	0	4	4	5	4	8	7	9	1	6
internet	0	2	1	1	0	2	0	2	0	1
E) # of teachers using ICT in teaching for:										
i) Searching information	2	5	5	7	5	5	10	11	3	3
ii) Learning and understanding	1	5	5	5	5	5	11	11	4	6
iii) Documenting and reporting	2	4	6	4	5	4	10	13	5	6
iv) Assessment and record keeping	1	3	4	4	7	4	15	17	4	4
F) # of teachers using ICT for self development										
i) NUS and other training courses	0	0	2	3	1	2	3	2	2	2
ii) MESIC in-service training	0	5	0	5	0	4	3	11	5	7
iii) Computer class elsewhere	1	2	1	1	1	0	5	6	1	3
iv) personal tutor	0	7	1	3	1	0	5	9	0	1
v) self teaching	0	7	5	6	4	3	5	9	2	5

TABLE 2 - Training Resource Development and Teacher Competency Levels

	Vaitele-uta Primary 19 teacher school	Vaimauga College 32 teacher school	Lepa College 14 teacher school	Amoa College 18 teacher school	Mata'aevave College 16 teacher school
Resource Development	These include only the materials developed as part of the project. Other materials such as those obtained from MOE (NZ) is not included here				
1) Curriculum areas covered in the training	Maths, Science, English and Samoan language	Maths, Science, English and Samoan language	Maths, Science, English and Samoan language	Maths, Science, English and Samoan language	Maths, Science, English and Samoan language
2) Training materials developed and supplied	8 Learning objects and Weblink inventory with over 100 links –on CD plus on SchoolNet portal Trainers Manual Teacher workbook	8 Learning objects and Weblink inventory with over 100 links –on CD plus on SchoolNet portal Trainers Manual Teacher workbook	8 Learning objects and Weblink inventory with over 100 links –on CD plus on SchoolNet portal Trainers Manual Teacher workbook	8 Learning objects and Weblink inventory with over 100 links –on CD plus on SchoolNet portal Trainers Manual Teacher workbook	8 Learning objects and Weblink inventory with over 100 links –on CD plus on SchoolNet portal Trainers Manual Teacher workbook
Teacher Training outcomes by Program	Level 1= awareness level Level 2= basic, requires close supervision Level 3= functional, can work independently to a certain degree				
# and % of teachers trained at each site	Trainers - 4 Teachers - 17 %in school 89.4%	Trainers - 7 Teachers - 28 % in school 87.5%	Trainers - 3 Teachers - 12 % in school 92.3%	Trainers - 4 Teachers - 17 % in school 94.4%	Trainers - 3 Teachers - 16 % in school 87.5%
Program 1 Recall and repetitions, dexterity, self paced, individual learning	Level 3 - 4/17 Level 2 - 7/17 Level 1 - 6/17	Level 3-14/28 Level 2- 6/28 Level 1- 8/28	Level 3- 3/12 Level 2- 4/12 Level 1- 5/12	Level 3- 4/17 Level 2- 8/17 Level 1- 5/17	Level 3- 3/16 Level 2- 6/16 Level 1- 7/16
	Mouserobics; Creating and saving files; WORD, Excel rules				

	Vaitele-uta Primary 19 teacher school	Vaimauga College 32 teacher school	Lepa College 14 teacher school	Amoa College 18 teacher school	Mata'aeavae College 16 teacher school
Program 2- Visualization and modeling -- self or group based, good for abstract concepts	PAINT, WORDART POWERPOINT Visualisation, individual and group activities	Level 3 - 6/25 Level 2 - 5/25 Level 1 - 14/25	Level 3 - 3/12 Level 2 - 4/12 Level 1 - 5/12	Level 3 - 4/17 Level 2 - 8/17 Level 1 - 5/17	Level 3 - 3/13 Level 2 - 4/13 Level 1 - 6/13
Program 3a Discovery learning -- individual or group projects	Lesson Plans using CD Toolbox and Internet Resources	Level 3 - 2/13 Level 2 - 4/13 Level 1 - 7/13	Level 3 - 3/6 Level 2 - 2/6 Level 1 - 1/6	Level 3 - 4/14 Level 2 - 5/14 Level 1 - 5/14	Level 3 - 3/12 Level 2 - 4/12 Level 1 - 5/12
Program 3b Collaboration and knowledge building through LAN, WAN and through WWW	Creative Use of CD, Internet and Portal resources	Level 3 - 3/13 Level 2 - 5/13 Level 1 - 5/13	Level 3 - 1/6 Level 2 - 2/6 Level 1 - 3/6	Level 3 - 4/14 Level 2 - 6/14 Level 1 - 4/14	Level 3 - 3/12 Level 2 - 4/12 Level 1 - 5/12
CAP management training and use of ICT	Principal/ Deputy Principal, SchoolNet Committee and school system administrators received training				
Program 4 Management and planning of SchoolNet	Management & administration planning; business development	Level 3 - 2 Level 2 - 6 Level 1 - 8	Level 3 - 2 Level 2 - 5 Level 1 - 7	Level 3 - 2 Level 2 - 6 Level 1 - 8	Level 3 - 1 Level 2 - 6 Level 1 - 8

Appendix 7: Key Indicators for M & E of the Performance and Sustainability of the Network Systems

Equipment/Performance	Indicator	Measuring Process and target	Monthly and Year-to-Date Results	Checklists and Comments
A Data Centre - Managed Devices and Internet connection (supplier - CSL) a) Servers (qty 3) b) Firewall and VPN c) Switch d) Tape backup e) Content Filter appliance (Firebox) f) Internet connection Preventative maintenance - primary purpose is to minimize system outages and if systems do fail, the impact will be controlled and less damaging.	<ul style="list-style-type: none"> • Preventative and corrective maintenance actions. • DRP Reports 	<ul style="list-style-type: none"> • Service Call logging & tracking. • Activities undertaken • Service credits due to customer 	e.g. Number and types of trouble reports, planned outages, non-scheduled outages, etc	<ul style="list-style-type: none"> • Adjust or tune applications as required. • Core Component Monitoring - Monitor disk space, • Memory and processor utilization, diagnose and rectify issues. • Firewall - Review logs, research issues and modify policies if necessary. • Non-scheduled ISP outages to be monitored, • Contingencies applied if appropriate, ISP contacted and liaised with until resolution.
As above	Unavailability (downtime) per month	0.03% - being equivalent to 90 minutes per month in aggregate for the 7 listed devices (i.e. availability target 99.97%) 3 hrs 0 mins		
As above	Average Fault Restoration Time (h:mm)			Trouble report clearance description

Firmware and software for the above equipment:	Pro-active maintenance plan.	Activities undertaken		Pro-active ongoing system checks, system updates. O/S upgrades. • Installation of firmware updates, software upgrades, patches, etc • Review alert to known issues • Modify download frequency and rectify issues
Security and Product Updates	<ul style="list-style-type: none"> Review update releases, implement upgrades or patches as required Antivirus definitions Unavailability (downtime) per month 	Activities undertaken		<ul style="list-style-type: none"> Review alert to known issues Modify download frequency and rectify issues
B Education Portal (supplier - CSL)		<ul style="list-style-type: none"> 0.75% - equivalent to 5 hrs 40 minutes per month (i.e availability target 99.25%) Service credits due to customer 	e.g. Number and types of trouble reports, planned outages, non-scheduled outages, etc	<ul style="list-style-type: none"> Trouble report clearance description
C Network Management for the Wide Area Network (supplier - CSL) (a) Wireless sites (3) (b) Dial-up telephone sites (3)	<ul style="list-style-type: none"> Bandwidth utilization report. Latency/jitter report Restoration of Performance Managed Devices 	<ul style="list-style-type: none"> Service call logging & tracking. Activities undertaken 	e.g. Number and types of trouble reports	<ul style="list-style-type: none"> Scheduled outages forewarned and suitable precautions and contingencies put in place. Non-scheduled ISP outages to be monitored, Contingencies applied if appropriate, ISP contacted and liaised with until resolution.
As above	Average Fault Restoration Time (h:mm)	<ul style="list-style-type: none"> 3 hrs for Apia sites or where travel not required 3 hrs + reasonable travel time 		<ul style="list-style-type: none"> Trouble report clearance description

D	Learning Centre 'Office' Equipment (supplier - CSL) (Data projector, Camcorder, printers, fax/scanner, photocopier, etc)	<ul style="list-style-type: none"> Preventative and corrective maintenance actions. Feedback from schools & MESC 	<ul style="list-style-type: none"> Service call logging & tracking. Activities undertaken 	e.g. Number and types of trouble reports	
	As above	Average Fault Restoration Time (h:mm)	<ul style="list-style-type: none"> 3 hrs for Apia sites or where travel not required 3 hrs + reasonable travel time 		<ul style="list-style-type: none"> Trouble report clearance description
E	Learning Centre Furniture (supplier - CSL)	<ul style="list-style-type: none"> Preventative and corrective maintenance actions. Feedback from schools & MESC 	<ul style="list-style-type: none"> Service call logging & tracking. Activities undertaken 	e.g. Number and types of repair reports	
F	Recurrent Costs (supplier - CSL) (a) Data Centre - Managed Devices (b) Internet (c) Education portal (d) Wide Area Network (e) Office Equipment (f) Office Furniture Miscellaneous/other	<ul style="list-style-type: none"> Costs by category – parts, consumables, labor, travel, overhead, Internet, Learning Centre telephone lines, Learning Centre telephone calls, etc Service credits for not meeting SLAs 	<ul style="list-style-type: none"> Comparisons with budgets 		Explain/justify any variances from budgets
G	Learning Centre ICT equipment (supplier - Datec) (a) Servers (b) Thin clients (c) Router (d) Modem (dial-up sites)	<ul style="list-style-type: none"> Preventative and corrective maintenance actions. DRP Reports Feedback from schools & MESC 	<ul style="list-style-type: none"> Service call logging & tracking. Activities undertaken 	e.g. Number and types of trouble reports	<ul style="list-style-type: none"> Adjust or tune applications as required Core Component Monitoring - Monitor disk space Memory and processor utilization, diagnose and rectify issues Firewall - Review logs, research issues and modify policies if necessary

	As above	Unavailability (downtime) per month	0.03% - being equivalent to 13 Minutes per month per listed device (i.e availability target 99.97%)		
	As above	Average Fault Restoration Time (h:mm)	<ul style="list-style-type: none"> • 3 hrs for Apia sites or where travel is not required. • 3 hrs + reasonable travel time 		<ul style="list-style-type: none"> • Trouble report clearance description
H	Recurrent Costs (supplier - Datec)	<ul style="list-style-type: none"> • Costs by category – parts, labor, travel, overhead, etc • Service credits for not meeting SLAs 	<ul style="list-style-type: none"> • Comparisons with budget 		