

**e-Government in the Pacific Island states:
ICT policy and implementation in small island
developing states**

Solomon Islands Country report

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1. Overview¹

E-government is widely regarded as 'transformational', increasing efficiency, productivity, accountability, economic growth, and citizen involvement. But while the governments of the Pacific Island states are committed to harnessing ICTs for effective government and economic development, they face major challenges in establishing successful e-government initiatives, through lack of infrastructure, human capacity, ICT literacy, and most importantly, appropriate strategies and policy.² This country report is one of a series of reports on e-government in Pacific countries being prepared by a research team from Victoria University of Wellington, New Zealand, assisted by in-country informants and co-researchers, as part of a larger project. The project seeks to understand the barriers and enablers of ICT adoption by the governments of Pacific Island states, focusing in particular on policy frameworks and governance structures that support successful innovation, and to identify best practice across the region.

For this report, the research team visited Honiara in November 2014 to interview key stakeholders in ministries and other government agencies and in the private sector. The information provided here is drawn from these interviews, agency policies and strategic plans, and other published documents. Where possible, the views of participants are distinguished from factual material, and the views of the research team noted. The format of the report comprises an introduction providing background information, an account of the views and achievements of key agencies and key stakeholders, and an analysis of the major issues that we have identified.

Robert Boase's (2009) report on the UNDP ICT4D project in the Pacific states outlines a number of expected benefits that Pacific Island states can expect from the introduction of ICTs to government. These include:

- More accessible government information and services;
- Faster, smoother transactions with government agencies;
- Increased access to government decision makers and to parliamentarians;
- More local access to government through the internet;
- Increased participation in government by all;
- Increased efficiency in government operations;
- Enhanced opportunities for smart partnerships with civil society and the private sector;
- Legal recommendation and security over the networks. (Boase, 2009, p2)

These expectations furnish an appropriate framework for investigating the development of e-government in Pacific island states, and provide a set of metrics by which progress towards an effective e-government program can be evaluated.

¹ Our thanks are due to all those who generously gave their time for interviews, and shared their experience and concerns with us.

² Waverman L, Meschi M, Fuss M. The impact of telecoms on economic growth in developing countries. The Vodafone Policy Paper Series. 2005;2 (03):10–24. Secretariat of the Pacific. Bridging the digital divide. Report of the 5th Conference of the Pacific Community. Noumea: Secretariat of the Pacific Community; 2007.

2. Introduction

A. The Context

Solomon Islands is one of the largest countries in Melanesia, with an estimated population of 572,200.³ Its land mass, totaling 28,896 sq. km., is an extensive archipelago east of Papua New Guinea, made up of a double chain of rocky volcanic islands and up to 1000 smaller coral atolls. There are six main islands in the group, Guadalcanal, Malaita, Santa Isabel, Makira (also known as San Cristóbal), Choiseul, and New Georgia. Populated by Melanesians since about 2000 BC, (although it is believed that Papuan speaking settlers may have arrived as long ago as 30,000BC)⁴, the country was settled in places by Spanish explorers in the 16th century, and became a British protectorate in 1893, when Germany relinquished its colonial claims in exchange for recognition of its claims in Samoa. During World War II the archipelago was the scene of many fierce battles between the Japanese and the Allied forces -the most crucial, prolonged and decisive of these on and around Guadalcanal between August 1942 and Feb 1943. After the war, due to the availability of flat land and military buildings around the US-constructed airfield that had played a crucial role in the war, Honiara became the new capital replacing the old capital on Tulagi, one of the Florida islands opposite Guadalcanal.

Solomon Islands achieved self-government in 1976 and independence from the UK in 1978. The country remained a member of the Commonwealth of Nations, with Queen Elizabeth II as Head of State, represented in Solomon Islands by a Governor General. A unicameral Parliament is elected every four years by universal suffrage, with the Prime Minister (usually the leader of the majority party) being elected by the Parliament and the Deputy PM appointed by the Governor General on the advice of the PM. Administratively, the country comprises the capital Honiara, and nine provinces. The current population remains primarily Melanesian, with a small percentage of Polynesians (a result of migrations dating back many thousands of years and continuing to the present day) and a smaller number of Micronesians and Chinese. Honiara has an estimated population of 68,000. There are 70 or more living languages in Solomon Islands, which remain spoken in the central islands, along with Solomon Islands Pijin; most estimates suggest that English is spoken by less than 5% of the population. Over 90% of the population are Christian (Anglican, Roman Catholic, Protestant and Seventh Day Adventist), the remainder of the population being Muslim, Jehovah's Witnesses, Mormon, and members of the Baha'i community. Aboriginal belief systems also have numbers of adherents.

Critical to the current political and economic context in Solomon Islands are several recent events, the “tensions” of 1998-2003, severe earthquakes, (both of which created a tsunami) in 2007 and 2013, riots which destroyed Honiara's Chinatown in 2006, and regular cyclones and flooding, including severe flash floods in Honiara in 2014. The “tensions” is the name given to the ongoing and violent conflict between the people on Guadalcanal and migrant Malaitans over jobs, land and resources, amid old grievances over land tenure and land alienated during the colonial period. A failed attempt by Australia to broker a peaceful settlement in

³ This figure comes from the World Bank, 2014, <http://data.worldbank.org/country/solomon-islands>. Some estimates are as high as 670,000.

⁴ WorldAtlas, 2015

2000 led to a request from the Governor General and the government to Australia to lead a peacekeeping mission. This request was supported by the foreign ministers of the Pacific Islands Forum, and security forces from Australia, New Zealand, Fiji and Papua New Guinea, the Regional Assistance Mission to the Solomon Islands (RAMSI), arrived in July 2003. RAMSI's mission has been described as “unique and complex”; as a regional partnership, in the country at the request of the government, its focus was on rebuilding the country economically and creating an effective state as well as restoring peace. Its success in peace-keeping has been broken from time to time most notably in the post-election riots in 2006, and the destruction of Honiara's China Town. RAMSI handed over power to the Royal Solomon Islands Police Force in 2013, and its current work is focused on strengthening the capacity of the RSIPF, but over the ten years of the mission RAMSI delivered institutional strengthening programmes alongside its military and policing mission, aimed at stabilizing the economy, rebuilding national institutions, and improving service delivery by government agencies.⁵

Solomon Islands is in the United Nation's “Least Developed Country” category, and is one of the poorest countries in the Pacific region. The bulk of the population depends on agriculture, fishing, and forestry for at least part of its livelihood. The main exports are timber, fish (processed and unprocessed), gold, copra, palm oil, and cocoa, China being by far the largest export destination.⁶ Most manufactured goods, as well as rice, trucks, construction vehicles, and petroleum products, must be imported. The islands are rich in undeveloped mineral resources such as lead, zinc, nickel, and gold.⁷ The economy was severely impacted by the “tensions” but according to IndexMundi, “RAMSI's efforts to restore law and order and economic stability have led to modest growth as the economy rebuilds.” Buddecom reports that ‘while GNI per capita is among the lowest in the region ... economic growth projections to 2015 are encouraging.’⁸ Australian support remains a mainstay of the Solomon Islands economy, providing about three quarters of total ODA (\$175.9 million in 2015-16).⁹

B. ICTs in Solomon Islands

According to the Telecommunications Commission of Solomon Islands, fixed line services declined from 8,801 in 2009 to 7,516 by June 2014. (1.2% of population) and mobile subscribers had reached 333,159 (54.61% of the population) by the same date.¹⁰ Mobile coverage (based on population of villages served) expanded rapidly from under 20% of villages in 2009, to 83% by June 2014, and mobile

⁵ Sources, RAMSI web site (www.ramsi.org), Department of Foreign Affairs and Trade. Solomon Islands country briefing.

⁶ OEC web site (<http://atlas.media.mit.edu/en/profile/country/slb/>)

⁷ http://www.indexmundi.com/solomon_islands/economy_profile.html

⁸ <http://www.budde.com.au/Research/Solomon-Islands-Telecoms-Mobile-and-Broadband-Market-Insights-and-Statistics.html> These estimates were made before the closure of the Gold Ridge gold mine due to the dangerous levels of water in its tail dam. Recent reports suggest the mine may be able to open again in 2016 (<https://ramumine.wordpress.com/tag/gold-ridge-mine/>)

⁹ <http://dfat.gov.au/geo/solomon-islands/development-assistance/Pages/development-assistance-in-solomon-islands.aspx>

¹⁰ Solomon Islands Government. Ministry of Communications, Aviation and Telecommunications. National ICT Policy, 2014. p10.

internet subscriptions grew to 8.04%.¹¹ Total internet subscriptions would need to include landline internet access as well but this is minimal. The Buddecomm report cited above notes that at 1% penetration “fixed-line tele-density is among the lowest in the South Pacific islands and has receded as mobile subscriptions have increased.” It also notes: “mobile penetration is above the regional average.”¹² However, telecommunication costs remain “prohibitive”, according to the report, which anticipates improvement in costs and penetration rates if a proposed submarine cable to the main islands, which is planned by the Solomons Oceanic Cable Company (SOCC) is achieved. This may also be an outcome of increased competition, as the Solomon Telekom Company (trading as Our Telekom), currently the main provider of fixed line services (as well as television broadcasting) and the dominant provider in the mobile market, is challenged by Bmobile partnered by global mobile operator Vodafone. Bmobile is now offering 3G UMTS (broadband, packet-based transmission of text, digitized voice, video, and multimedia) at data rates up to 2 Mbps (higher in areas with more capacity). The SOCC, co-owned by the National Provident Fund, and Solomon Telekom is expected to connect Honiara to Sydney, (via the cable running from Guam to Sydney) and connect Aiki in Malaita province, and Noro in Western province to Honiara, thus connecting about 75% of the SI population. With funding from the ADB, (and the private sector) tenders were let in October 2014 and construction was expected to begin in 2015 but this has been delayed due to uncertainty over the exact route, and construction has yet to be approved by government.¹³ Global mobile company Digicel, supported in principle by the World Bank, is also proposing a public private partnership funded submarine cable that would connect Papua New Guinea, Palau, the Federated States of Micronesia, Nauru, Solomon Islands, Vanuatu, New Caledonia, Wallis and Futuna, Fiji, Tonga, Samoa and Cook Islands back into Sydney.¹⁴

In 2015, Our Telekom announced the launch of its O3B high speed low latency internet service, initially to Honiara, to be extended via a new microwave fixed network currently under construction to Western and Malaita provinces in the near future and eventually to all provincial centres.¹⁵ This and other competing technologies in the region (such as satellite broadband startup Kacific) will have an impact on competition and pricing structure in the next few years.

¹¹ This data, taken from the TCSI’s *Telecommunications Sector Key Indicators for Year 2013* is included in the National ICT Policy, cited above. No updated figures are available on the web site of the TCSI.

¹² <http://www.budde.com.au/Research/Solomon-Islands-Telecoms-Mobile-and-Broadband-Market-Insights-and-Statistics.html>

¹³ <http://www.fiberopticmania.com/news/details/873/solomon-islands-to-get-submarine-fiber-optic-cable> (21.6.15)

¹⁴ <http://www.digicelgroup.com/en/media-center/press-releases/achievements/digicel-calls-for-public-private-partnerships-to-build-new-submarine-fibre-optic-cable-to-connect-all-pacific>

¹⁵ Our Telekom unveils high speed internet. *Solomon Star*. Aug 15, 2015.

<http://www.solomonstarnews.com/news/business/6493-out-telekom-unveils-high-speed-internet>

3. The Ministry of Communication, Aviation and IT and the Solomon Islands Telecommunications and ICT Development Project

Delivery of ICTs in Solomon Islands is under the oversight of the Ministry of Communications, and Information Technology (MCAIT) and the Telecommunications Commission (TCSI). The Telecommunications Commission, in the person of the Telecommunications Regulator, reports to Parliament, but works closely with the Ministry. It is responsible for both the economic and technical regulation of telecommunications sector, including broadcasting and the allocation of radio spectrum.

In August 2013, the Ministry of Communication, Aviation and IT, in collaboration with the International Telecommunications Union, held a workshop in Honiara on the development of a Solomon Islands ICT Policy and Strategic Plan. According to a press release from the Ministry reported in the *Solomon Times* this was part of the Ministry's ongoing efforts to embrace the use of Information and Communication Technology as a key tool for the socio-economic development of the country, and to provide key stakeholders in the country "with an opportunity to discuss and provide input into the Draft National ICT Policy and Strategic Plan." Then Permanent Secretary Mr Francis Lomo, said the plan would include ICT for development policies, building ICT capacity and governance and the development of various e-government applications to assist the government in delivering more effective service.¹⁶

Following these discussions a Solomon Islands Telecommunications and ICT Development Project was established, funded by the World Bank and the Pacific Region Infrastructure Facility.¹⁷ The goal of the project was to develop a draft National ICT Policy and e-government policy framework that would set out the necessary legislative framework, promote greater accessibility of ICTs throughout the country and increased use of ICTs by individuals, businesses, and government. The first output of the project was an Issues Paper,¹⁸ drafted by an ICT Policy Technical Advisor seconded to the MCAIT (funded by the Australian Commonwealth Government and World Bank), which sets out the context, benefits and challenges related to ICT use in the region and in Solomon Islands in particular. The Principles and Objectives that might form the basis of the proposed policy were set out in the appendices. The paper, which was disseminated with assistance of the Telecommunications Commission, invited comment on these principles to the TCSI or the ICT Policy Advisor c/- TCSI, or through workshops, submissions and public consultations. A key tenet of the proposed ICT policy was that it should be consistent with the Solomon Islands National Development Strategy 2011 to 2020.

The Issues paper itself outlined the considerations that must be taken into account in developing a national policy, including international and domestic connectivity; the importance of locally relevant content and the preservation of national culture;

¹⁶ Solomon Times Online, 29 August, 2013.(<http://www.solomontimes.com/news/discussions-begin-on-ict-policy/7884>)

¹⁷ <http://www.theprif.org>

¹⁸ Solomon Islands Telecommunications and ICT Development Project. Issues paper: National ICT Policy.

literacy and ICT skill levels; consumer protection and the management of objectionable content and behavior; privacy, data-security, cybercrime and cybersecurity, and the importance of leadership to ensure any government objectives and strategies are implemented across multiple ministries and agencies. The Outline of a National ICT Policy was set out in Annex A. Based on the eight objectives of the National Development Strategy 2011-2020¹⁹ a set of eight National ICT Objectives and strategies for implementing these were proposed and an Action plan set out that included actions and performance indicators should be part of the final draft National Policy.

Following a period of consultation, the Issues Paper was redrafted and submitted to the Cabinet by the Ministry of Communications and Aviation as the *National ICT Policy 2015* with the following ICT Vision statement

“A peaceful, united and progressive Solomon Islands communicating and informed by technologies open to all.”

This is followed by the ICT Mission statement

“To make information and communication technologies available, affordable and accessible to all in Solomon Islands; to enable equal participation by all in the social, cultural, economic and political life of Solomon Islands.”

Part One of the Policy includes the background and ICT Policy principles articulated in the original Issues Paper, including the state of ICTs, some of which is reported above. Part Two of the Policy sets out the Objectives and Strategies of the Policy under the following headings: Accessibility of ICTs, Legal environment for ICT, ICT for Good Governance (which involves utilizing ICT at all levels of government), ICT for Peace and Unity, ICT for Health, ICT for learning, ICT for Business, ICT for the Environment, and ICT for Equity. Under each heading the objective is spelled more fully (in English and in SI Pijin) followed by a discussion of contextual issues and a set of strategies for addressing these, summarized in a table of strategies and actions for achieving the Objective. Under the second heading, Legal Environment, the need for a legal framework to encourage investment by ICT providers (a pro-competitive regulatory environment) as well as the legal framework needed for both consumer protection and enabling business (electronic payments, digital signatures, cyber-security etc.) are outlined. Under ICT for Health, the objective is linked to the National Health Strategic Plan, and the focus is on both better management of health services, enhanced clinical expertise, and health promotion. Under “ICT for Learning” the management of staff, upskilling staff, and providing better educational resources and opportunities are outlined. Under ICTs for the Environment effective response to climate change, disaster preparedness and response, and waste management are key elements highlighted.

The strategies that follow the objectives discuss in some detail the options for achieving them, including how to achieve universal access, a key principle for the

¹⁹ Available at: <http://www.adb.org/sites/default/files/linked-documents/cobp-sol-2015-2017-sd.pdf>

successful implementation of e-government. This is dealt with under ***Objective 1. Create an environment conducive to investment in ICT infrastructure, content and services in order to improve the availability, accessibility and affordability of ICT for the people of Solomon Islands.*** Unlike other Pacific Island nations, Solomon Islands is not proposing to use levies on telecommunications providers to subsidise services in remote areas where demand is not sufficient to meet the cost of service delivery. Acknowledging the improvement in 2G and 3G mobile networks since the Telecommunications Act of 2009, (which does authorize such measures) the Policy notes that the Telecommunications Commission has to date “found it inadvisable to intervene in the market in this way.”²⁰ The Policy proposes that the government adopt strategies to stimulate demand, including the creation of locally relevant content, “in order that areas will not be considered “uneconomic” by operators”, and “redistribute funds to support under-served groups of users, rather than to support operators. Providing financial support to under-served users in order to make the provision of service financially neutral for an operator and able “to be carried out as a public service rather than a profit opportunity”²¹ will require an amendment to the Telecommunications Act. This is a bold approach, and only over time will it be possible to judge whether it is more or less successful than the approach of neighbouring countries facing the same issues.

Other strategies for e-government and for improving government use of ICTs, related to ***Objective 3. Good Governance***, are also outlined. This Objective is defined as to ***Utilize ICT at all levels of government to promote good governance and facilitate the efficient administration of government and delivery of public services throughout Solomon Islands.*** The work of the ICT Support Unit (ICTSU) in the Ministry of Finance in connecting ministries and agencies through the GovNet wireless network SIG-Connect is commended, but challenges to the effective use of ICTs in government such as lack of funding, inadequate hardware and software, and lack of skilled IT personnel are noted. The Solomon Islands Government is described as continuing “to grapple with slowness and inefficiency in Government responses to citizens’ requests and needs”, and a “lack of databases providing access to centralized or certain government information”. These are seen as critical to the availability of government information for efficient administration and to enhance transparency and accountability. Strategies for better use of ICTs by government agencies that the ICTSU is currently putting in place are noted and incorporated into the Policy, including the completion of the Whole of Government ICT network SIG-Connect by connecting remaining ministries, extending the wireless SIG-Connect network throughout Honiara, and the rollout to the provincial capitals in the long term; the strategies also include the establishment of a National Data Centre and disaster recovery capability.

A key strategy of the National ICT Policy focuses on the need for a single independent agency to lead and coordinate the implementation of the Policy across government, and the establishment of both a National Information Office (NIO) and a Chief Information Officer (CIO) to lead it. Specialist knowledge and expertise is needed because of the possibility that e-Government initiatives underway might involve “not just advanced technical competency but also process re-engineering

²⁰ National ICT Policy, p29.

²¹ Ibid, p30.

and change management expertise.”²² It is suggested that the CIO to be appointed should be “an expert in public sector ICT”, with three deputies responsible for Policy, Stakeholder Engagement and E-Government functions, and adequate administrative support. Centralized government ICT models from across the globe (including the UK, USA Canada and Australia) are noted, although no examples from neighbouring countries or other SIDS are mentioned, possibly because none are fully centralized.

This is followed by a strategy to “Integrate ICT into the work of the Government”, by means of integrating ICT issues into sectoral planning, defining and building ICT capacity among public servants and members of the national and provincial parliaments, making information from these parliaments publicly available and enabling community-based involvement in political decision-making. Under the strategy Develop a National E-Government Strategy the CIO is to be tasked with coordinating a national e-government strategy, identifying ways of funding and supporting e-government programmes, building ICT capacity, establishing pilot projects, developing infrastructure and operations for service delivery, and raising public awareness. The CIO would also be responsible for the enacting of necessary legislation outlined in Objective 1. The paper does not make clear where this unit would be located, or what relationship it would have with the ICTSU, but clearly some of the work currently undertaken by the ICTSU would come under the oversight of the CIO, and would be responsible for implementing many of its initiatives.

Strategies for Health, Education, and the Environment are discussed later under those Objectives and are discussed under those headings in this report. Strategies for Equity recognise and seek to leverage the potential of ICTs and mobile technology to provide support, training, and employment to disadvantaged groups in the community- youth, women and the disabled.

4. The Role of the Regulator

The Telecommunications Commission Solomon Islands (TCSI) is a body corporate established in 2009 under Section 6 of the Telecommunications Act and comprises a single person, the Telecommunications Commissioner, appointed by the Minister responsible for the Act, on the recommendation of the Evaluation Committee (established under section 7 of the Act.) The principle purpose of the Telecommunications Act is to

...enhance the long term well-being, inclusiveness, and fairness of Solomon Islands society ... to be delivered by improving the variety, availability, affordability, and quality of telecommunications services which Solomon Islanders can enjoy, principally through the introduction of competition.

This commitment to an essentially market driven approach to the development of nationwide communications infrastructure has fundamentally changed the role of government in this sector. In the past Solomon Islands governments, like governments

²² National ICT Policy, p42.

elsewhere, have been directly involved in the delivery of telecommunication services and more recently the Government was the regulator of radio-communications and the incumbent telephone network operator, which held an exclusive licence for many years.

Under the 2009 regime, the Government's main role now is in the purchase of telecommunications services from the competing private sector companies. In addition it acts as a provider of or conduit for, funding for the Universal Access Special Fund. Both these roles are crucial to the achievement of the legislation's principal objective.²³

To enable it to vigorously pursue these goals, the Telecommunications Commission is independent of government being funded “by service providers paying a license fee to the Commission directly”,²⁴ (initially, until this generated sufficient income, it was supported by a grant from the World Bank.) The Commission is thus not subject to government direction, and reports directly to the Parliament. Its primary responsibility is to ensure effective competition through “the application of the telecommunication competition conduct rules”,²⁵ and to manage the use of radio spectrum. It is also responsible for conducting public consultations on a number of the activities and resources that it manages, and has consulted in the past year on both the proposed National ICT Policy and the National Broadcasting Policy.²⁶

The key aspect of the telecommunications market in Solomon Islands that the Commission believes has brought significant advances in terms of affordability, consumer choice and uptake of mobile subscriptions, is the fact that the Solomon Islands telecommunications market is uniquely balanced, with symmetrical competition between two major providers.²⁷ This, plus the fact that the Act provides for “world-best practice”, operated by an international expert, who has “a complete tool-box” to work with²⁸ has created a strong liberalized sustainable market. Within this context, the TCSI actively pursues a demand-driven approach to Universal Access, rather than the supply-side approach used in neighbouring Pacific countries which are seen as compromising the competitive process which has been so successful to date. This demand-side approach, which promotes demand for services rather than a levy or universal access subsidy, is strongly advocated in the National ICT Policy which the TCSI commissioned as part of the part of the World Bank funded Solomon Islands Telecommunications and ICT Project. Supply-side infrastructure subsidies would compromise the competitive process, according to the Commissioner, and place too much emphasis on infrastructure rather than people using the services, and having access to services.” By seeking and applying “conditional cash transfers”, a strategy with conditions attached such as specified investments in education or health services used by the World Bank's International

²³ Telecommunications Commission Solomon Islands. Annual report 2011.

(<http://www.tcsi.org.sb/images/stories/pdfs/tcsiannualreport2011.pdf>)

²⁴ Telecommunications Commission Solomon Islands. “Competition Policy and Law in Solomon Islands: an Outline of the Telecommunications Experience”, provided by the TCSI in November 2014.

²⁵ Ditto

²⁶ TCSI website at: <http://www.tcsi.org.sb>

²⁷ Unique in both the regional telecommunications environment, and also in the fact that it is the biggest domestic market, and a potential model for other sectors.

²⁸ Interview with the Commissioner, 9/11/14.

Development Association in granting aid for poverty reduction²⁹ it may be possible to create demand-side stimulus measures such as subsidies for schools and hospitals to buy subscriptions from telecommunications service providers.

Through its role as the Project Implementing Entity for the Solomon Islands Telecommunications and ICT Development Project, which had been responsible for its own creation, the TCSI took responsibility for the appointment of a Technical Advisor, to prepare a set of policies ensure the application of information and communication technologies in the country would support the economic and social development of Solomon Islands, including opportunities for women.³⁰ The Project's primary outcomes were the two Issues Papers on a National Broadcasting Policy, and a National ICT Policy. While formally located in the Ministry of Communications, Aviation and IT, Technical Advisor was supported in practice by the TCSI in the development of the two Issues Papers and the consultation processes attached to each. The two draft National Policies, issued by the MCAIT were presented to the Prime Minister for consideration by Cabinet in June 2015.³¹

In its support for the development of a National ICT Policy, the TCSI was concerned to acknowledge and build on the work of the ICTSU in the Ministry of Finance and Treasury, and the effective government network that the unit has put in place by expanding the vision for ICT across government. As the Commissioner expressed it, the country still lacks adequate “institutional infrastructure”, a common factor across Pacific island states but exacerbated in Solomon Islands by its recent history; there is therefore a greater need to educate ministers and senior ministry staff in how to manage ICTs for the long term benefit of the country, and raise expectations of institutional performance, and build HR capacity to enable effective ICT use by government. In the view of the Commissioner, the leadership role that the ICTSU has taken in this work), would be an appropriate role for the proposed new Government CIO, who, it was hoped, would be able to offer the kind of leadership seen in neighbouring Vanuatu. But the lack of institutional capacity has led the Commissioner to the view that not only his own role,³² but that of the GCIO should for the time being be held by an outside international expert.

5. The Ministry of Finance and Treasury

The Ministry of Finance and Treasury's main divisions are the Treasury Division (which includes Payroll and Procurement as well as Financial Management Services), the Inland Revenue Division, and the Customs and Excise Division. It also includes smaller units such as the Budget Unit, Economic Reform (which includes State Owned Enterprises), Statistics, Internal Audit, and the ICT Support

²⁹ Fiszbein, A and N Schady. *Conditional Cash Transfers: Reducing Present and Future Poverty*. World Bank Research Report no 47603.

³⁰ World Bank. Solomon Islands: Telecommunications and ICT development project. P113148. Announcement Washington, 6 April 2010.

³¹ Solomon Star. “Draft ICT broadcasting policies with PM” <http://www.solomonstarnews.com/news/national/7276-draft-ict-broadcasting-policies-with-pm>

³² TCSI. “Competition Policy and Law in Solomon Islands”.

Unit (ICTSU) which manages and develops all government networks, applications software and equipment.

The Central Accounting Service and HR use a general ERP system, Microsoft's AX Dynamics, installed with assistance from the Australian Commonwealth Government Department of Foreign Affairs and Trade, which operates from the ICTSU's own large central datacentre. The system is backed up in a purpose built government owned and operated containerized Disaster Recovery Site. The Treasury also uses the Commonwealth Secretariat's CS-DRMS (Debt Recording and Management System), a state-of-the-art system which integrates well with the World Bank Debtor Reporting System and is widely used across the Commonwealth and beyond for managing public debt.

Also within the Treasury Division, the Payroll, Revenue and Imprest Branch uses the Aurion HR and Payroll system (which is linked to the central accounting system.) This is a full HRMIS developed by a Brisbane-based company, installed in 2009, which has vastly improved personnel management throughout the government sector. It is jointly owned/operated by ICTSU, Treasury (Payroll) and the Ministry of Public Services (Personnel Records) and has brought considerable improvements in personnel management, especially in ensuring prompt payment in the education and health sectors where employees are located well away from Honiara or the provincial capitals, and where historically there have been issues about whether everyone on the payroll is actually employed (a phenomenon known to auditors as ghost workers). In the education sector in particular, it has brought improvements in paying teachers on time, and has simplified the procedures for applying for leave. An EU 2012 Public expenditure and Financial Accountability (PEFA) Assessment for Solomon Islands noted that

The personnel databases are still divided into three systems: the Public Service Commission (PSC), through the Ministry of Public Service (MPS), covering about 7,000 employees, the Teaching Services Commission (TSC), covering about 7,000 teachers and the Police and Correctional Service Commission (PCSC), covering about 1,200 staff. Each Commission has its own establishment list. In addition, there are a number of contract and temporary employees, who are not on the establishment list controlled by MPS and are under the direct control of the line ministries.³³

Implementation of Aurion version 11 since this report has seen even further centralisation and greater accountability in the sector. The HR and payroll system is now highly centralised and accessible by all Government HR Managers through SIG-Connect, the first Whole of Government system to be accessed by all ministries. As the ICTSU rollout SIG-Connect to the provinces, the potential for real-time access to the system for individual ministries is increasing. Although current practice is still for all data on personnel to be sent to MPS/Finance and entered manually, the capacity of the system to manage authorisation for various levels of access means that from the end of 2015 all HR Managers in government

³³ PEFA report 2102, p67 https://ec.europa.eu/europeaid/sites/devco/files/report-pefa-assessment-solomon-islands-201212_en.pdf

agencies will be able to access agency staff data, a considerable efficiency for most agencies.

The Customs and Excise Division is also a division of the Ministry of Finance and Treasury, and, along with the IRD Division, contributes revenue to the Payroll, Revenue and Imprest Division. It uses the ASYCUDA World system for managing customs revenue and border control, the latest and most powerful web based version of this UNCTAD software, provided at no cost to developing countries (although there are substantial associated costs of hardware, training etc. which have been supported by the Australian Government.) ASYCUDA allows customs administrators and traders to handle most of their transactions, from Customs Declarations to Cargo Manifests and Transit documents, via the Internet. ASYCUDA uses a standardized Single Administrative Document (SAD, or eSAD when it is used exclusively online) and promotes the use of the international UNCTAD Harmonised system for coding imports and exports, and the World Customs Organisation's Data model which streamlines government-to-business and government-to-government transactions. It also produces reliable statistics, includes essential elements for 21st century trade such as bio-security data (although it is not clear whether Solomon Islands uses this part of the system), and enhances both trade and revenue gathering. The system, launched in August 2015, is expected to make the handling of imports and exports easier, reduce processing times, and lower business costs.³⁴

The Inland Revenue Division of the Ministry of Finance and Treasury uses the DataTorque Revenue management System for managing tax revenue which comes from income tax (including PAYE on income over \$15,000), goods tax, sales tax, stamp duty (on sales of property and businesses, mortgages and leases), and vehicle licenses. Its web site, launched in 2011, and created by IRD staff with the support of a New Zealand funded RAMSI project, enables businesses and citizens to access general taxation information (including taxpayer guides), information about vehicle and driver licensing, and download in pdf format the forms that must be filed with the IRD. It is already credited with significantly increasing government revenue.³⁵ IRD also manage the Solomon Islands Transport Management System, a Data Torque system installed with the support of NZAid, and forms for driver and vehicle licences are now also available online.³⁶ The system will support a database of registered vehicles and drivers which will bring improvements in both traffic administration and revenue gathering.

6. The ICT Support Unit (ICTSU)

The ICTSU's main function is to advise ministries and donors on ICT related issues; provide core ICT services to some ministries; set standards for ICT procurement, liaise with vendors and ensure new ICT network installations comply with

³⁴ Solomon Star, 6.8.15

³⁵ <http://www.ird.gov.sb/Resource.aspx?ID=68>

³⁶ Solomon Times Online, 4.2.14. (<http://www.solomontimes.com/news/new-transport-management-system-introduced/8049>)

standards; set and enforce ICT policies. ICTSU has around 35 staff, 11 full-time staff in the ICTSU itself, and IT officers from other ministries, as well as two Australian funded Technical Advisors (one strategic, one technical). Currently the ICTSU is linked via the WiMAX³⁷ SIG-Connect network to 24 ministries in Honiara, located in over 90 offices. Individual systems from these agencies into the central office are gradually being transferred to the ICTSU datacentre.³⁸ This is a large network linking over four thousand staff by the end of 2014 (the SIG-Connect infrastructure was initially funded by an Australian Commonwealth Government Department of Foreign Affairs and Trade project,³⁹ but the datacenter itself is funded by the Solomon Islands Government.) Decisions are now being made about which corporate systems to use to maximise the value of the network. In this process it was considered important to ensure that international companies were specifically invited to participate in the tendering process, so as to encourage them to build a track record of successful projects in the region, secure their long term interest in the country, and open doors for future projects. Although much of this project has been handled by Technical Advisors from Australia, the strategy in the ICTSU is to build local capacity over time and ensure that senior Solomon Island staff in the ICTSU have credibility with major vendors, and that vendors provide their own support staff for major systems, rather than rely on transient Technical Assistants who have a short term tenure. This strategy involves thinking long term about sustainable projects across government rather than the previous pattern of an offer of an application, a development specialist ‘in and out’ and a project that falls over once they have left.

As the ICTSU has transferred more systems from other ministries onto its own bank of servers it has brought IT staff in from those ministries to enable more effective management of the entire IT team, and provide better training and advancement opportunities for staff. The server system itself is modular based, so will be more easily upgraded at the end of its expected life of 5 years. With the network in place, the next major development is business applications. Key developments that are coming on board are taking place in Education, Health, Meteorology and the Environment, and Fisheries. Fisheries is already capturing a lot of data but the new network will enable this data to be put to better use. According to staff in the unit SIG-Connect is already saving the country more than 25 million dollars a year in internet charges through providing a single managed Internet access point, and has increased workplace efficiency through a standardised government email address, with the added advantage of full backup and greatly enhanced security.

But data sharing remains a problem. The network has clear potential to add value to projects in individual agencies, but ongoing problems with the quality of data and lack of experience in data sharing must also be resolved. Through the network, small initiatives encourage better communication between agencies, and common use of data. For example, data sharing in Public Service systems is encouraged

³⁷ A WiMax is a wireless wide area network that provides the high speed of DSL while also providing connectivity in every corner of its coverage area, and provides the suitability of Wi-Fi while not requiring hotspots and not having distance limitations.

³⁸ Information in this section was provided by staff and advisors in the ICTSU in interviews on 7/11/14 and 12/11/14.

³⁹ Donor funding from Taiwan is also been made available to develop the network into a broadband network.

through functional shared drives (and agreed standards in data collection) as well as group email lists. Another example is Fisheries Division (in the Ministry of Fisheries and Marine Resources), which is being encouraged to share and utilize data through a project coordinated by the ICTSU in association with the Australian CSIRO EPOG Project.⁴⁰ Data from the CSIRO and from the SPC Geoscience Division is input into a GIS-based reporting tool SolGEO at the ICTSU datacenter, bringing together all Solomon Islands GIS data on marine resources into a single marine spatial data set that can be viewed anywhere on SIG-Connect for planning purposes.⁴¹

By the end of 2015 all government offices were connected to SIG-Connect (apart from the National Parliament and the Electoral Office, which have elected to remain independent for the time being), and significant effort was being made by ICTSU to get the network out to provincial government offices. This enables all government agencies whether located in Honiara or the provincial capitals to sit on a single network, to use the same corporate services (financial management, HR, antiviral software etc), to access the same systems, and, most importantly, to share information between offices within the same ministry. SIG-Connect now manages and pays for all government internet access through a Managed Internet Service which provides a 40Mbps internet service within a corporate environment which limits access to employment related purposes.⁴² Getting this network established has taken considerable technical expertise and investment by ICTSU; the system is considered to be technically very advanced for the region, and has been funded in part by ICTSU and some ministries which have contributed part of their ICT budget to the project.

Work is now underway to persuade agencies how to make effective use of this powerful new tool and a strategy of demonstrating the benefits of the network and the ability of ICTSU to assist agencies in implementing a networked system while ensuring security of data has been adopted. Two key ministries leading the way are the Ministry of Justice, and the Ministry of Education. Justice, in particular, has high needs for data security, and has needed to be reassured about the additional security the new network offers. But, as the more detailed account below demonstrates, systems in the Ministry of Justice are now nearly fully migrated and the agency has been able to improve its work flow and efficiency. Key government agencies such as the Office of the Auditor General (OAG) are also a high priority for being linked into the network. The OAG has been invited to play a major role in auditing the government information system each year, along with their annual audit of the Ministry of Finance, and have been assisted by training funded by the Australian Computer Society. The National Parliament and the Electoral Office were also due for migration onto the system, but that was delayed due to the dissolution of Parliament and the impending elections in 2014, and will be completed in 2015.

⁴⁰ Enhancing Pacific Ocean Governance (<http://hapi.uq.edu.au/docs/SKEWES%20TIM.pdf>)

⁴¹ SIG ICTSU Briefing Note. Mobile Data Collection Tools and GIS Reporting Tools. 2015.

⁴² ICTSU bandwidth has increased from 3Mbps in 2013 to 40Mbps in 2015, and by that time accounted for approximately 15-20% of country bandwidth.

The next stage will require a focus on applications, and getting systems in place that will work across individual agencies, and lead to better intra- and inter-agency data-sharing. Currently the ICTSU sees a lot data held on a single pc (sometimes not even backed up), and in some cases, because of constant outages paper-based systems are used in preference to a dysfunctional online system. Data is often replicated within agencies and between agencies, but not integrated, so that no one agency holds data and information that is up-to-date or accurate. It is hoped that this will change as more and more agencies gain the confidence to make use of SIG-Connect for inter and intra-agency data transfer. Examples such as EPOG GIS project to capture and analyse marine resources data outlined above will demonstrate to other agencies what can be achieved by the use of advanced ICT systems and data sharing within and between agencies.

The proposals outlined in the National ICT Policy, for Whole-of-Government support, the integration of ICT into the work of Government, and the enhanced delivery of government services online in both core agencies as well as Health Education and the Environment present challenges for the Unit. Regardless of the where the OGCIO sits, ICTSU will require staff with a better understanding of information systems rather than just IT if they are to deliver on these objectives and strategies. And even in IT, capacity remains a major issue. A more formal partnership with USP is suggested as one way of ensuring appropriate training is available. But, although students can get scholarships to USP or an Australian university, they are disadvantaged by their background and need both pre-degree training and pre- and post- degree industry placements to enable them to get the most out of the opportunity, and fill the necessary roles in government (or business.) Responsibility for this kind of staff development is recognised by the ICTSU and some senior staff have been undertaking postgraduate courses through Charles Sturt University. As the main employers of IT staff in Solomon Islands the unit tries to ensure it can offer career opportunities to qualified IT staff, and help them develop new and higher level skills. One way of doing this is placements overseas, and a partnership between the Australian Computer Society and the ICTSU has been established to set up such placements.

While the ICTSU has had input into the National ICT Policy, the staff of the ICTSU note that it still has some gaps; for example, it does not comment on the value of central procurement to achieve economies in purchasing ICT hardware across government. And although the need for ICT capacity building in all sectors is frequently mentioned, the strategies in the Policy for this key task, under the ICT for Education objective, do not, in the view of the ICTSU, go far enough.⁴³ But their main concern is about the leadership of the project, the need for a driving force to implement it, whether this is the Minister of Communication, Aviation and IT or a Permanent Secretary. Although ICTSU is responsible for government systems, there is not the capacity, and not the desire, in the unit to take on the policy and long term strategy role, or responsibility for community ICT services outlined in the paper. The ICTSU would need strengthening, and would need a double reporting line (to the Ministry of Finance and the Prime Minister's Office to enable it to take

⁴³ ICT Strategy 6.6, "Establish training support, standards and certification for ICT technical personnel", includes several actions which include a national skills audit, regional partner collaboration, training partnerships with business and collaboration with business in funding skills development.

on the role of Government CIO that the Strategy outlines. It would also need a more senior manager in the Ministry to take some responsibility for the unit itself, and for ICT across government - at the moment there appears to be little interest in the work of the unit at higher levels. But clearly, there is broad agreement on the fact that there will need to be very strong links and excellent cooperation between the ICTSU and the new CIO if the proposed National ICT Policy is going to work, since the work of the ICTSU is essential to successful e-government implementation.

7. The Ministry of Commerce, Industries, Labour and Immigration

The Ministry of Commerce, Industries, Labour, and Immigration includes several industry and investment units, labour and consumer affairs, trade training, and the companies register (intriguingly titled the Company Haus). The Immigration Division handles visa and entry requirements, and handles passports for residents and citizens. The Company Haus, which is the online register run by the Solomon Islands Companies Registry Office was funded in 2010 by the Asian Development Bank, through the ADB's Pacific Liaison and Coordination Office in Sydney. It enables individuals to register companies from the provinces (or from overseas) without having to visit Honiara, and provides information for foreign nationals wishing to invest in existing enterprises. Its installation was accompanied by a reform of the Companies Act, to help modernize Solomon Islands business laws and increase access to finance opportunities, as part of an ADB initiative across the Pacific (the Private Sector Development Initiative.) The venture was expected to “help reduce the cost of doing business, encourage compliance, and ensure fair trading and consumer protection through appropriate regulation.”⁴⁴ The Company Haus is an exemplary site which contains clearly displayed essential information, and links to current legislation, and explains in simple language obligations and procedures related to operating and registering a company in Solomon Islands.

8. Management of Financial Data in Related agencies

Other ministries handle financial data in proprietary systems developed to cope with specialised functions, such as the UNDP funded DAD system used by the Ministry of Development, Planning and Aid Coordination (currently being replaced). ICTSU supports systems such as DAD (Synergy's Development Assistance Database) as well SAGE and MYOB, small enterprise accounting systems used by the Ministry of Infrastructure Development and the Ministry of Provincial Government and Institutional Strengthening respectively. Over time it is expected that these agencies will be integrated into the centralised financial management and payroll systems, which will bring cost savings, and greater opportunity for accountability and data sharing. By contrast, although the Solomon Islands National Statistical Office (SINSO), a stand-alone unit within the Ministry of Finance and Treasury clearly makes use of data systems in the Ministry as well as data from the Ministry of Health and Medical Services, its web site hosted by the Secretariat of the Pacific

⁴⁴ <http://www.adb.org/offices/pacific/pacific-private-sector-development-initiative>

Community, (SPC) and it uses the SPC Prism site⁴⁵ for data analysis and dissemination. PRISM also supports PopGIS 2.0, which enables the mapping of population data across the provinces and rural regions of Solomon Islands.

9. The Central Bank and Financial services

The Central Bank of Solomon Islands (CBSI) plays a crucial role in managing monetary policy, the currency and foreign exchange rates, advising government on economic development, and regulating the financial sector in the country. The CBSI is well supported by international and regional agencies, including the International Monetary Fund (IMF), the Australian Prudential Regulation Authority (APRA), the Australian Government through DFAT, the Alliance for Financial Inclusion (AFI), PFI/UNDP; Commonwealth Secretariat, Pacific Financial Technical Assistance Centre (PFTAC) and the Asian Development Bank (ADB). Much of this funding goes into technical training, and some into projects for small business development and financial inclusion. CBSI maintains its own IT systems, using Technology One's financial and accounting system, a Working Store system for currency stock management and reporting, an Exchange Control system built in-house, and its Financial Sector Information System database, which for security reasons is maintained behind a Smoothwall firewall. Many of these systems are required by and supported by the banks international partners. The bank also operates an IT Disaster Recovery Plan as part of its Business continuity program.

As in all developing countries, access of citizens to financial services (financial inclusion) is a key development priority for government, and a responsibility of the Central Bank. According to the 2011 People's Survey in the Solomon Islands, only a quarter of the population had a bank account. Given the potential of mobile phones and mobile banking for reducing those without access to banking services, the National Financial Inclusion Taskforce overseen by the Central Bank has focused on mobile technology to increase the number of account holders to ensure that 80% of Solomon Islanders have bank accounts and access to financial services by the end of 2017.⁴⁶ Tablets used in-store, and mobile banking agents in the field were able to enroll new customers in locations where previously stringent 'Know Your Customer' identity requirements set in place by the Anti-Money Laundering Commission would have made this difficult. Banking using mobile phones was launched in 2013 by three financial institutions providing services over the network of Solomon Telekom (Westpac "banking on the go", ANZ "goMoney" and BSP "Branchless Banking"). The services use Unstructured Supplementary Services Data (USSD), which works on 99% of handsets and do not require Internet access. It allows clients to use their cell phones to transfer money to bank accounts, check

⁴⁵ The PRISM site at <http://www.spc.int/prism/> was set up to enable SPC member states to publish statistical indicators and information on their own web site.

⁴⁶ Central Bank of Solomon Island. Annual Report 2014. p35.
(<http://www.cbsi.com.sb/fileadmin/publications/ar/AR-2014.pdf>)

balances, pay bills and top up their prepaid balances. These initiatives have been supported by the Pacific Financial Inclusion Program, the Bill and Melinda Gates Foundation, AusAid and NZAid (amongst others) in conjunction with microfinance schemes, rural savings clubs and financial literacy education. The impact of these programmes and the technology itself will hopefully be better understood when the results of a survey of demand for these services, commissioned by the Central Bank, become available late in 2015.

10. The Justice sector⁴⁷

The Ministry of Justice and Legal Affairs handles most of the core tasks in the sector for the country. It includes the Office of the Attorney General (and the Solicitor General?), handles administration of the court systems, public prosecutors and public defenders. It also has oversight over the village justice system, which has been developed in recent years, and which is taking the load off the formal court system for minor disputes and offences, although this has not been entirely successful.⁴⁸ It does not have oversight of the Judiciary, but supports the Judicial and Legal Services Commission and the Law Reform Commission.

The court system in Solomon Islands consists of four levels, the Court of Appeal, the High Court, the Central Magistrate's Court (which can sit in the provinces as necessary, and can also, when required, sit as the Juvenile Court), and at the local level, the Local Courts and Customary Land Appeal Courts. Decisions of the Court of Appeal, the High Court and the Central Magistrate's Court are published on the PacLII web site⁴⁹ (current, including 2015). The PacLII web sites also publishes electronic versions of Consolidated and Sessional Legislation, (which consists of Consolidated Legislation up to 1996, with an Index of Legislation and updates up to 31 Dec 2012, and Sessional Legislation, up to, and indexed up to the current month.) Relevant United Kingdom legislation from 1837 to 1959 is also available. The PacLII databases are the major source of information on the Solomon Islands courts, although there are a number of ad hoc systems in place within the court system itself, created as part of volunteer placements, or brought in by judges on secondments from neighbouring Commonwealth jurisdictions, mainly New Zealand and Australia. The Magistrate's Court has for some years had its own system for storing data and scheduling cases, using an Access database, and 9 or 10 separate networks. Such systems, often created by a donor-funded volunteer are not always easily maintained after that person has departed, and cannot be accessed by other sections of the Ministry of Justice.

More recently, the justice sector has undertaken a major reform to implement a cross agency Justice Information Management System (JIMS). This initiative was led by the Chief in 2014 and with the support of the Permanent Secretary and the Minister of Justice ICTSU has been working with the entire courts sector to create

⁴⁷ Information provided by Minnie Ora and other sources.

⁴⁸ Allen, Dinnen, Evans and Monson. *Justice Delivered Locally*. World Bank and Ministry of Justice and Legal Affairs. 2013.

<http://documents.worldbank.org/curated/en/docsearch/author/m1063722>

⁴⁹ The Pacific Islands Legal Information Institute, at <http://www.paclii.org/sb>

a new integrated system. The system will bring together all the standalone systems across both the ministry and the Royal Solomon Islands Police force, each of which has overlapping and inconsistent data into an Integrated Courts Management System. The ICMS will connect with the Police to enable a case to be followed through the court process, from the time someone is charged with an offence, including cases that are escalated to a higher court. This new system is bringing increased speed and efficiency to justice sector workflows, and access to information. (It was also noted that this can be put in place immediately, whereas a Commercial off the Shelf system, would need to be funded as part of an aid project.)

JIMS is the most advanced and secure system in country and was developed in the country with a local development company and the ICTSU. JIMS currently handles police incident and response management (including biometrics) all the way through the court system and practice management to correctional services (to be implemented early 2016). There are plans to further develop JIMS to link to other government datasets including the Transport Management System.

The ministry is already using the centralized financial and HR systems through SIG-Connect, was the first agency to do so, and is finding the CIS accounting system very efficient. The final stages of SIG Connect, which will vastly improve links with the provinces and provincial offices, will enable the new courts management system to cover provincial courts as well. It is also hoped that data sharing systems will enable checks to be made between Police, IRD, and transport agencies for better security in the country. But alongside this, and acknowledging the efficiencies to be gained from opportunities for sharing civil data from this system as well as the Civil Registry and IRD (outlined in the SIGICTSU Briefing Paper⁵⁰ cited earlier) there are concerns about privacy and security and the new system for the justice sector will need to have very secure systems, as well as be able to guarantee reliable connectivity. Recent improvements to connectivity through SIG-Connect will be essential to its success. More importantly, it would normally be expected that legislation to protect citizen's personal information and establish adequate protocols and permission (usually from Parliament) for sharing civil data should be in place before any civil data sharing beyond an individual ministry was carried out.

Given that the Ministry of Justice and Legal Affairs does not have a web site, there is little publicly available information about the Ministry and the justice sector in the country. The Solomon Islands Judiciary Annual Report for 2009 is available on the PacLII web site and the annual State of the Judicature Report 2013 by the Chief Justice, opening the legal year for 2013, the seventh such report, is also found on the PacLII site, but no others. In some ways more information is found about the sector in reports of the various aid agencies, especially NZAid. NZAid, in partnership with the Federal Court of Australia funded and led a Pacific Judicial Development Programme aimed at promoting the rule of law and strengthening courts across the Pacific from 2010-2015, a programme in which Solomon Islands participated. The programme used toolkits for strengthening court systems across the Pacific and one of these, the *Annual Court Reporting Toolkit* was expected to lead to more annual reports being published and greater transparency in the justice

⁵⁰ SIG ICTSU Briefing Note. Mobile Data Collection Tools and GIS Reporting Tools. 2015.

system in Pacific countries. In the absence of a web site for the Ministry of Justice and Legal Affairs the role of the PacLII web site in seeking out and publishing annual reports takes on increased significance in supporting transparency in the justice sector. The justice system has also benefited from a large number of advisors over recent years, some supported by the SIG - RAMSI Law and Justice Programme.

11. Civil databases: the Civil Registry and the Electoral Roll

At the end of 2013 a new Civil Registration database was launched, part of a UNICEF initiative to improve the registration of children in PICs, and ensure the right of every child to be registered,⁵¹ as noted in Article 7 of the *United Nations Convention of the Rights of the Child*, to which Solomon Islands became a signatory in 1995. (Previous figures suggest that registration in Solomon Islands was as low as 48% of births.⁵²) The system was developed by PROMADIS (an Australian software company specialising in Vital Statistics software), in partnership with the Department of Home Affairs, UNICEF (New Zealand) and the EU. Technical support was also provided by the Brisbane Accord Group, SPC, WHO and Australian Bureau of Statistics and University of Queensland. The launch was accompanied by training of Home Affairs staff and other key stakeholders in the operation and management of the system, and to ensure that the relevance of the database to the work of other agencies was understood. The database, a full CRVS system, will also allow previously unregistered citizens to formally register as adults.

But the quality of data is affected by processes at the local level, which involve both the Ministry of Health and the Civil Registry Office in the Ministry of Home Affairs. Births are recorded by doctors or nurses attending a birth, who issue a notification document confirming the birth, gender and weight of the baby born to a named mother. The mother is then required to register the baby with the Civil Registry Office, who issue a birth certificate. The same process occurs with notification of a death-notification by the health authority being taken by a family member to the Civil Registry Office which issues the death certificate. With the development of the newly implemented SIG-Connect network connecting all government agencies to the servers in ICTSU, the technical infrastructure is getting to the point where data transfer and data sharing is effective and reliable. But the data is still compromised in several ways - only 90% of births are in a health facility, and there are delays in adding recent birth data to the system.⁵³

A. The Electoral Roll

⁵¹ Solomon Islands Civil Registration System Goes Digital.
(http://www.unicef.org/pacificislands/1852_22006.html)

⁵² UNICEF. **Annex III**: Consolidated Interim Report – Year 1: Breaking with Broken Systems. p16
(Cached at: static1.1.sqspcdn.com/.../Annex+III_Consolidated+Interim+Report_EU+BR-2.docx)

⁵³ Interview with Audrey Aumua (6.11.14)

Parliamentary elections are managed by the independent Solomon Islands Electoral Commission, chaired by the Speaker (of the Parliament), with two other members appointed by the Governor-General. A new electoral database was launched in time for the parliamentary election held in November 2014. This used a biometric voter registration system commissioned by the Minister of Home Affairs, and supplied by Canadian software company, Electoral Services International. The BVR system stores a photograph and both thumbprints of all citizens registering, and issues them with secure voter ID cards. A text message campaign was used to inform the public about the voter registration process and about candidates, voting procedures and locations of polling stations. (There is some evidence that SMS messaging was also used to influence and intimidate voters.)⁵⁴ The SIEC reports that approximately 85% of all eligible voters registered to vote, and that a record 89.93% of those registered cast a vote (This compares with a figure of 52.4% in the 2010 elections, although this figure is considered to be distorted by the number of multiple registrations and deceased persons on the roll prior to the introduction of Biometric Voter Registration.)⁵⁵

This initiative is considered by Transparency International's Steve Julax as a considerable improvement which "really helps in preventing multiple voting" and that "the election's success is a result of RAMSI's long-term investment."⁵⁶ It is clearly yet another major weapon against corruption (an issue raised in the same report by former SI High Court Judge Stephen Pallaras, who states that despite a successful peaceful election, "corruption is endemic".) The Electoral roll is entirely separate from the new Civil Registration database, where the emphasis has been on registering births. The two systems are not compatible and are not shared, and the Electoral regulations prohibit sharing on the biometric electoral roll.⁵⁷ While this is a common problem, not unique to developing states and their aid driven silos, it is still a significant duplication of resources. The view has been expressed that this signals a lack of understanding about how to integrate systems, and of the value of data sharing. However, it should be noted that while there is a lack of legislation to both facilitate and monitor data sharing, the protection of citizen's rights over their personal data should perhaps be the dominant principle.

12. Parliament and other Democratic structures

The overall management of the Solomon Islands Parliament is the responsibility of the National Parliament Office and the Clerk of the National Parliament who is responsible for recording the business of the Parliament and preparing for sittings.⁵⁸

⁵⁴ Haley, N and K Zubrinich. *Mobile Phones and the 2014 Solomon Islands National Elections*. State, Society and Governance in Melanesia. Australian National University In Brief series 20125/28 (ips.cap.anu.edu.au/ssgm)

⁵⁵ Solomon Islands Electoral Commission. *Record Voter Turnout*. (<http://www.siec.gov.sb/index.php/about-us/128-record-voter-turnout-siec>)

⁵⁶ Australian Broadcasting Corporation. <http://www.abc.net.au/radionational/programs/lawreport/solomon-islands-hc-judge-speaks-out-v2/5912956#transcript>

⁵⁷ See the SI Electoral Commission's FAQ brochure available at: <http://www.siec.gov.sb/index.php/resources/factsheets-and-brochures>

⁵⁸ The SI Parliament website, and an interview with ICT staff in the Clerk's Office have been used for this section.

The Speaker, whose main responsibility is to preside over sittings of the Parliament, is not an elected Member of Parliament but is elected by members from all citizens who are eligible to be elected as MPs. Depending on the legislative programme of the government, there are three meetings of parliament a year, each lasting from 1-3 weeks, and sitting days (which run from 9.00am-4.30pm) are broadcast by the Solomon Islands Broadcasting Corporation. Sessions are also live-streamed within the parliament buildings.

The Solomon Islands Parliament has been well supported in developing its use of technology. Its ICT Unit is relatively well-trained, and is conscious of the need for security and independence in its systems. It has not yet joined SIG-Connect, and does not participate in the national SIG system for Finance and Payroll, (and may decide to continue this stance because of concerns about the independence of the Parliament), but it uses relatively advanced technology compared with other parliaments in the region. This is undoubtedly due to the fact that the Parliament has been part of a UNDP Strengthening project since 2001. This project has supplied computing equipment in the past, continues to fund use of the Internet, and has helped fund salaries for an additional 14 out of 71 staff of the Parliament (including the appointment of an ICT Officer, ICT training, and the development of an ICT Policy for the Parliament.) As part of the UNDP programme, some of the needed ICT training was undertaken in Australia, by the New South Wales Parliament, also a partner with the Solomon Islands National Parliament. As the Strengthening project winds down the UNDP-funded staff will be transferred to the SIG Parliament budget. Hansard has been a focus during the second and third phases of the UNDP programme. During the second phase, the recording of sessions for Hansard and the reporting of the proceedings of Select Committees was done electronically but transcribed manually. This is now being further upgraded, and a Solomon Islands-funded Service Contract Agreement with Australian software company Oconics (which handles the Hansard software for the Australian Federal Parliament) for a Hansard Production System, was signed in September 2015. This will presumably mean that a previously planned update to *For The Record* software will not go ahead.

In the third phase of the project (2012-15), which is just coming to a conclusion, the focus on the use of ICT to support the work of Parliament has continued with knowledge management training, a review of the Hansard Department, and an e-Parliament project, in which a Parliamentary Intranet is being developed to facilitate the sharing of documents and improve processes (in conjunction with the SPC). This will provide all MPs and staff with access to the library catalogue (which uses open source software Koha), library databases, and a document management system which uses D-Space (also an OSS product). The IT Unit hope to use the intranet to make Bills available on tablets for MPs (they are already available online on the Parliament web site). A twinning arrangement with the New Zealand Parliament which has been part of the UNDP strengthening project has been concentrated on the development and quality of Hansard reporting, and the management of Select Committees, with some New Zealand staff visiting Honiara to undertake staff training. By the end of the project the Parliament web site is intended to be “comprehensive and interactive.”⁵⁹ Long term plans, yet to be

⁵⁹ UNDP. Strengthening the National Parliament of Solomon Islands

implemented, include more interaction with citizens, a process for making submission [to select committees?] online, and an e-participation project.

The web site of the Solomon Islands National Parliament contains current information about sittings (including Order Papers and Select Committee hearings), All Acts (since 1981), Bills since 2003, Hansard since 1986, membership of Committees, and lists Members of Parliament for all Parliaments since the 1st (1976-80). The members list for the current parliament (10th) includes the Post Box address for the parliament, and fax and telephone numbers (members have email addresses, but do not appear to use them or make them available to constituents). The web site also makes the National Parliament Strategic Plan 2010-2016 and the Solomon Islands Constitution available, links to the HR Division, with information about the parliamentary process and employment vacancies, and also the Civic Education Division. This was established in 2008 as part of the UNDP Strengthening program, and focuses on Community engagement, work in schools and school visits, and gender issues. The Young Women's Parliamentary Group is very active and has space on the parliamentary web site.

13. Government records⁶⁰

An equally important part of the democratic process and one that is essential for government accountability is government record keeping. National Archives of Solomon Islands, (in the Ministry of Culture and Tourism) is responsible for government records as well as the national archives, and the Government Archivist is an active participant and member of the Council of PARBICA, the Pacific Regional Branch of the International Council on Archives. With assistance from an Australian volunteer, the National Archives of Solomon Islands (NASI) issued a Records Management Manual for government officers, which includes information about the importance of government record-keeping, basic records management and archival principles, the appraisal of records (for archiving), conservation and disposal principles. Supplementing the earlier *Solomon Islands Government Records Management Guidelines (2007)*, and based on the PARBICA Toolkit,⁶¹ it covers the handling of electronic records (the current policy being to create hard copy, file and store), managing email, and back-up. National Archives has joined the SIG-Connect network, which in addition to more efficient HR and finance management, has given it server space at ICTSU with off-site backup, secure wireless internet (fully funded by ICTSU), virus protection, general ICT support and IT helpdesk support. NASI staff and volunteers are taking considerable interest in how ICTSU will manage their own files (including email files), as well as those of other agencies because this will have an impact on overall efficiency of government record-keeping systems, as well as NASI's own records. They are aware of resistance among some agencies, and have been participating in debates

<http://www.parliament.gov.sb/files/project/phase3/2011-06-27%20Project%20Document%20SOLOMON%20ISLANDS.pdf>

⁶⁰ Information in this section is drawn from publications of the SI National Archives, and interviews with the Government Archivist and other staff conducted in November 2014.

⁶¹ PARBICA. The Record-Keeping for Good Governance Toolkit (<http://www.parbica.org/sharing/publications/recordkeeping-for-good-governance/index.aspx>)

and offering professional assistance across government about record-keeping and the process of selecting records for preservation.

NASI also has a retrospective project underway, the digitisation of its oldest and most vulnerable collections, the archives of British Solomon Island Protectorate, (transferred to Honiara from the Western Pacific Archives in Fiji in 1972.) The project is being funded by the SI Government, and an expert in digitization was being sought, although delays in securing someone suitable meant the funding was lost. But the project is proceeding; currently the BSIP collection is being catalogued in Excel, with the intention of migrating the data to D-Space at a later stage once the scanning project commences, and the scanned documents are held on the dedicated server space at the ICTSU. In the meantime, the BSIP collection has a usable Finding Aid which lists the title, location and description of over 8000 items, and awareness of the collection is growing. The Finding Aid is used by staff from Parliament, and the Solomon Islands National University, and items can be scanned on request, even though the full scanning project has not yet commenced. NASI has had considerable support from PARBICA, and from Archives NZ, and benefited from the recent PARBICA biennial conference in Honiara in 2014.

14. The Ministry of Health

The Ministry of Health and Medical Services has primary responsibility for the delivery of health services in Solomon Islands as funder, regulator and provider although a few private practitioners offer fee-based services, and NGOs and faith-based organisations provide some supplementary services there are three faith-based hospitals, which are part-funded by the Solomon Islands Government.

The Ministry has four major divisions, each headed by an Undersecretary: *Health Improvement*, which oversees a number of national programmes; *Health Care*, which oversees all clinical health services (including the National Referral Hospital (NRH), which has its own CEO), Provincial Health Offices, and the National Medical Store. This division also manages pharmaceutical and diagnostic services, and regulates the health workforce; *Health Policy and Planning*, which manages national and provincial health planning, monitoring and evaluation, as well as the health information system; *Administration and Finance*.⁶² The National Referral Hospital in Honiara offers the highest level of care, including specialist services staffed by local specialists and visiting specialists from the region (usually through development or aid programmes). Services include ear, nose and throat, pediatric surgery vascular surgery, cardiology, and cardiac surgery. NRH also serves as the Provincial Hospital for Guadalcanal province. Provincial Hospitals are usually the highest level of care available to the rural population especially in the remote islands, and offer basic in-patient and outpatient services, including maternity services, child health, dental and eye care, communicable and non-communicable diseases, mental health services, basic x-ray and laboratory services, as well as medical and surgical emergency services (all of these within current capacity of

⁶² Solomon Islands Health System Review (Health Systems in Transition, Vol 5, no1, 2015) Asia Pacific Observatory on Health Systems and Policies. Available from: <http://www.ispor.org/consortiums/asia/documents/SolomonIslands-HiT.pdf>

staff and resources). They have regular outreach visits from the NRH as well as occasional specialist visits. Eight of the nine provinces has a Provincial Hospital.⁶³

Below the level of the Provincial Hospitals there are 38 Area Health Centres, 102 Rural Health Centres, and 187 Nurse Aid Posts (which can offer basic medical and first aid treatments, antenatal and low risk maternity services, and patient stabilization for transferal.) All levels of service have public health programmes, which include family planning and nutrition, immunization, health promotion, environmental health, vector-borne disease control etc. and all but the Nurse Aid posts offer HIV/AIDs and STI prevention and treatment, tobacco, alcohol and substance abuse programmes. However, as noted in both the WHO reports cited here, resources are often inadequate to offer all these services at an adequate level, and even the National Referral Hospital in Honiara has been described as “filthy” and “run down”, overcrowded and lacking running water, clean bedding and bandages, and unable to offer basic medical services.⁶⁴ As the Solomon Islands Health System review notes:

The majority of hospitals are in very poor condition ... For power many hospitals rely on generators, which are often only operated during the day to save costs. A number of buildings were damaged during the conflict and in recent natural disasters and have not been fully restored ... Access to water varies ... 80% of hospitals have rainwater collecting tanks ... The plumbing at Gizo Hospital and at NRH is in need of repair as breaks in the pipes have rendered some parts of the hospital wards without tap water. On these wards, buckets of water are kept in the sink for handwashing.⁶⁵

Despite this, the same report notes that expenditure on health services is high by international standards (i.e. for a country on the UN LDC list), health outcomes are above average, and the system is considered to have high levels of equity of access to health services.⁶⁶ (This is largely because of the minimal “out-of-pocket” cost to individuals, although this view does not take into account the concentration of services around Honiara, and the inadequacy of services at all levels.)

A. Information and medical technology

The supply of medical equipment is only slightly better. There are, according to the WHO Asia Pacific Observatory report radiography and ultrasonography machines at all hospitals, and most provincial hospitals as well as the NRH have a blood bank and a basic medical laboratory, although “the NRH has are neither trained staff nor equipment to conduct diagnostic tests, other than for malaria.” (Most tests are sent to Australia.) Diagnostic and surgical equipment, however, is old and in poor repair and basic equipment such as thermometers, sphygmomanometers, glucometers,

⁶³ Health Service Delivery Profile: Solomon Islands 2012. (WHO and Ministry of Health)

⁶⁴ Australian Broadcasting Corporation.. Solomon Islands Judge speaks out.
<http://www.abc.net.au/radionational/programs/lawreport/solomon-islands-hc-judge-speaks-out-v2/5912956>

⁶⁵ Solomon Islands Health System Review, p49.

⁶⁶ Solomon Islands Health System Review, p35.

and refrigerators for storing vaccines are not available in 20 percent or more of facilities. Communication between hospitals, the NRH and rural clinics is reliant on shortwave radio, and although mobile technology is improving communication, it is least reliable in remote areas where shortwave radio is also least reliable. However, internet access, although still costly and unreliable in most centres is rapidly improving, due to advances in the telecommunications sector. Such connectivity is essential for other projects in the health sector, which are driven by the ICTSU in the Ministry of Finance. Centralised HR and financial systems, including audit, are linked through SIG-Connect, and provide a backbone for administrative services for the Ministry as well as hospital and community services, with the potential to extend its use to support the collection of health data for the Health Information Service, discussed below. The Ministry uses m-supply (NZ-based pharmaceutical management software)⁶⁷ for pharmaceutical inventory and is exploring the use of tablets for stock management of pharmaceuticals and medical supplies.⁶⁸

A basic patient management system, based on an Access database has been built in-house in the Ministry, and is in use the NRH. In 2015, however, the ICTSU developed an interim patient management system, ADT (Admission, Discharge and Transfer). Initially the system will service only the National Referral Hospital, and will provide a basic patient record which will be accessible as patients move through the hospital system and record discharge (with no clinical coding.) This will require the hospital to be wired to be fully effective. There is an expectation that the system will eventually link the National Referral Hospital, provincial hospitals, the pharmaceutical system and the radiology system outlined below using SIG-Connect, but that is dependent on resources. It is also intended to support the extraction of data for the HIS, and the new database on births and deaths. This initiative has been largely funded and developed by ICTSU so as not to call on any scarce health sector resources. The hospital is also installing the Karisma radiology system for medical imaging⁶⁹ which, it is hoped, will allow x-rays to be available to doctors on the wards. Karisma has the potential to be integrated with leading industry PACS (picture archiving and communications) products, and includes dictation and transcription software, patient history and scanned request forms. It also connects well to standard patient management and health information systems. But at the moment it is being used as a standalone system, and most of its features are not accessible.

B. The National ICT Policy's strategies for the Health Sector

The National ICT Policy (p47) picks up the strategy outlined in Solomon Islands Ministry of Health and Medical Services *National Health Strategic Plan 2011-2015* (2011)⁷⁰ to make use of ICT and allocate resources for this purpose in order to

⁶⁷ <http://msupply.org.nz>

⁶⁸ Minges, M. and C Stork. *Economic and Social Impact of ICT in the Pacific 2015*. Sydney: Pacific Region Infrastructure Facility, Asian Development Bank, 2015. (<http://www.theprief.org/index.php/resources/document-library/121-prif-ict-study-report-2015>)

⁶⁹ Karisma is an internet-based Radiology Information System (RIS) using industry-standard architecture on Ms SQL Server. <http://www.kestral.com.au/karisma-features.html>

⁷⁰ Solomon Islands Ministry of Health and Medical Services *National Health Strategic Plan 2011 – 2015*. (http://www.wpro.who.int/health_services/solomon_islands_nationalhealthplan.pdf)

improve connectivity to support more effective administration, and health information management systems. The Policy also adds some new goals, noting that the ability of ICTs “to be ‘always on’ and cross distant points at speed and low cost means they have much to contribute to delivery of health services” although current levels of service in Solomon Islands could not be described as ‘always on’ or, indeed, low cost. This aside, the policy notes that, given this level of communication, ICT can make it possible for health workers to consult patients and provide diagnoses remotely; collaborate with colleagues without the delay and expense of travel; access medical information or expertise virtually anywhere in the world; and further their knowledge and training through online courses and seminars. The actions in Section 161 below also spell out the use of ICTs for better health information, public health promotions (in appropriate languages), the development of an electronic health record to improve clinical care, and the use of ICTs to support clinical and diagnostic services, and manage medical supplies. (pp. 51-52) These strategies would have to be considered aspirational rather than practical, given the state of health services in the country, the priority that should be placed on sanitation and medicines and the huge unmet demand for health care in the country. The Health IT sector globally is one where projects constantly overrun budgets and under-deliver on service improvements, and prioritisation of areas where ICTs could make the most impact would be an urgent matter as soon as the national ICT Policy is adopted. Given the dominance of smartphone technologies in the country (smartphones and tablets with 3G connections) this should also be considered as a way of handling patient data and public health messages.

Public health is one area where the National ICT Policy identifies ways in which ICT can contribute to the Solomon Islands Development strategies. This is through the use of ICTs in the following ways:

- Ensuring hospitals and clinics maintain adequate stocks of medical supplies;
- Raising awareness on specific health issues and promoting awareness of
 - healthful living;
- Promoting good infant and young child feeding practices;
- Promoting healthy diets by strengthening social marketing and awareness
 - raising;
- Providing reproductive health and family planning information and
 - counseling.

Given the fact that less than 5% of the population speak or can read English, and that very few can read in their local language, most of the resources for these initiatives will need to be prepared in SI pijin or make use of audio/visual formats in local languages in order to have any impact in more remote areas, which is often where the need is greatest. This also applies to the National ICT Policy of disseminating public health messages and information in (appropriate languages), as noted in Strategy 5.3. Both these strategies needs to take local conditions into account, and take cognisance of the cost of developing such resources in a range of languages.

C. Health Information Management

Health data is collected by the Health Statistics Unit based in Honiara, from all primary healthcare clinics and outpatient facilities; the data is collected manually and entered into the District Health Information System database at the provincial hospitals, linked via the Internet with Honiara. This connection with Honiara will in future be through the newly established SIG-Connect provincial network, which should improve the transfer of data. The Health Information System has recently been re-developed a consolidated dataset using open source software DHIS2 (using a cloud-hosting option, which inevitably affects performance), replace some legacy systems and some manual systems which record data from a range of local/regional public health programmes covering diseases such as tuberculosis, NCDs, and HIV/AIDS.

The 2015 Solomon Islands Health System Review⁷¹ notes that while DHIS2 is currently used for individual programme management as well as monitoring and review, the data is used mainly within local primary health care and district services. DHIS2 software currently “relies on health facilities sending manual reports in to provincial hospitals, where data input occurs” and during 2015 other programmes (e.g. the Malaria programme) continued to enter their own local data. This has the disadvantage of retaining duplicate systems, since this data is also collected by the NHIS, but discussions are ongoing about how to eliminate this costly double collection, and over time the implementation of a more integrated system through SIG-Connect should eliminate this duplication, and make the entire SI Health Information System more responsive and reliable. The National Health Strategic Plan 2011-2015⁷² noted that while a sound Health Information System was the highest priority for the sector, it was, along with medical technology considered by senior health sector staff to be performing significantly below ‘average’ performance. The upgrade of the system, the ability to enter data on site, and a more robust connection with Honiara will make a significant contribution to bringing the national HIS up to a more acceptable standard. This issue is noted in the National ICT Policy as one of the actions for Strategy 5.1.

It is worth noting, one major issue here, however. DHIS2 is designed for environments such as Solomon Islands. It is an open-source web-based system that can handle poor connectivity, work on and off-line, and run on smart phones and tablets, with the ability to transfer data using SMS. It manages longitudinal individual patient data, appointment schedules, tracking and reminders. At the same time it functions as an effective Health Information Management System, extracting anonymised data using ICD-10 codes,⁷³ and has a GIS component. It can interconnect well with other standards-based health IT systems such as Karisma. However, at the moment its application in Solomon Islands is limited to a few local programmes, and ICTSU has no access to the system. It seems a great pity that yet again, duplication of systems is still occurring in the critical area of health IT and that this powerful software is not being well utilised. Expanding use of the DHIS2

⁷¹ Solomon Islands Health System Review, p25-6

⁷² Available at: http://www.wpro.who.int/health_services/solomon_islands_nationalhealthplan.pdf

⁷³ Although this itself might be a barrier since ICD10 is not an easy system to use especially for health workers without high level English language skills.

system would be one way of fulfilling the National ICT Policy’s Strategy 5.1 and the action: Implement a cost effective Electronic Health Record system to improve clinical care.

D. ICTs for Clinician Support

Enhanced communication and internet access also has potential for the use of technologies such as skype to support telemedicine initiatives which can enable a clinician to advise a nurse working in an area clinic or a nurse to support a nurse aide, as well as for a clinician to get a second opinion (as noted in the National ICT Policy). Internet access can also bring current health information to clinicians, either through access to PUBMed, the WHO’s HINARI project which provides free access to health institutions and clinicians in developing countries to otherwise expensive medical and scientific journals, or the POHLN web sites focused on diseases of the Pacific and online training opportunities for isolated health professionals. But sustainability is clearly an issue, especially considering the uneven supply of electricity, poor connectivity, and higher priorities in the health sector such as medicines and infection control.

Overall there is huge potential for the use of ICTs in the health sector in Solomon Islands, even affordable reliable internet access would make a difference to health service delivery. But as one former TA in the health sector noted, ICT applications for the delivery of healthcare and for clinical support have been considered for some years, based on whatever technology was available at the time, but the key issues of affordability and capability, and the costs of system maintenance and renewal of software licenses remain even when advances in technology make such systems potentially more workable.⁷⁴

15. The Ministry of Education and Human Resources Development and the Education Sector

The education sector in Solomon Islands is divided into Early Childhood (3-5yrs); Primary (6-11); Lower secondary (12-14); Upper secondary (15-18); Technical Vocational (15-21); and Tertiary (18-21). Formal education was first introduced by Christian missionaries who established schools in many parts of the country throughout the first half of the 19th century. Following independence in 1978, the SI Government took over responsibility for providing education at both primary and secondary level, although in the 21st century a small number of independent secondary and vocational institutions remain. A substantial number of pre-schools are community and privately owned. The total number of educational institutions (including Early Education Centres), according to the Ministry of Education and Human Resources is 1,227.⁷⁵

Overall, as many sources report, the education system suffered considerably during the “tensions” as well as in the earthquakes and tsunami of 2007 and 2013; it is

⁷⁴ Interview with Sascha Pigott (11.11.14)

⁷⁵ MEHRD. Performance Assessment Framework 2007-2008. Issued 2010. (<http://www.mehrd.gov.sb/documents?view=download&fileId=13>)

beyond the means of many families, and still fails to meet the needs the country's young people.⁷⁶ While Solomon Islands are the second biggest recipient of foreign aid flows in the Pacific (after Papua New Guinea the country receives almost 17 percent of the region's Overseas Development Assistance) much of the aid in the area of education is seen as inappropriate and out of context to local needs.⁷⁷ Education based on western models, unrelated to the future of their young people is not therefore seen as a high priority in many communities.⁷⁸ Although primary education is free, net enrolment rates reported by the MEHRD (2013) were under 90% for primary education, and under 43% for secondary education. End of year examinations which must be passed in order to progress to the next level mean very few children complete the full seven years of secondary education. Teachers are paid by the Ministry of Education, but are employed by provincial governments, churches or communities. The system lacks qualified teachers and adequate facilities. In primary schools, buildings, sanitation and teaching resources are inadequate and even clean water is lacking. The ICDE report notes: "less than half the schools provide safe drinking water."⁷⁹ It also notes that: "language policy is another cause of concern. The language of instruction in all Solomon Islands schools is English although only a small proportion of the population in rural areas or on remote islands is competent in this language." However, this is at least being addressed. The Ministry is developing a Multilingual Education Programme, with funding from UNICEF, and in 2014 eight designated schools in the Arosi and Sa'a region will trial the MLE programme, and children entering school will learn to read and write in their own language. (Materials will be provided by SIL International operating in Solomon Islands as SITAG (the Solomon Islands Translation Group.) It is hoped over time to extend this to more of the over seventy languages in Solomon Islands.⁸⁰

The ICDE reports also notes the dramatic increase in mobile phone coverage in Solomon Islands, but observes that internet access remains fragile despite the introduction of the O3B low level satellite service, and that because of that opportunities for ICT-based distance education are limited. There was an attempt to set up distance learning through the Solomon Islands People First Network in 2000, using the HF network, and solar powered modems to connect to the internet. This led to a more ambitious project funded by the EU and NZAid, in which Distance Learning centres were set up in each of the nine provinces; they were each attached to rural community high schools, and had a full-time manager and a small computer lab. Access to short courses on vocational topics were provided through the system. Despite considerable effort and plans for a National ICT strategy to follow they did not achieve their objectives and the project slowly lapsed for lack

⁷⁶ International Council for Open and Distance Education (ICDE) Country profile. Solomon Islands. (http://www.icde.org/projects/regulatory_frameworks_for_distance_education/country_profiles/solomon_islands/)

⁷⁷ Mitchell, Lucy. The PRIDE Project: Assessing the Regional Approach to Basic education delivery. MA thesis, Victoria University of Wellington, 2011, p65

⁷⁸ Pollard, Bob. 'Solomon Islands Education and Donor Assistance in the Post Conflict Period' in Kabini Sanga & Ana Taufe'ulungaki (ed.), *International Aid Impacts on Pacific Education*, (Wellington: He Parekereke, Institute for Research and Development in Maori and Pacific Education, Victoria University, 2005),

⁷⁹ This is confirmed by the MEHRD PAF 2007-2008, cited above.

⁸⁰ <http://www.sil.org/about/news/mle-pilot-project-planned-solomon-islands>

of support, finally being ended in 2010. A contributing factor in this will also have been the fact that the project was initiated during the conflict and that post conflict, during the RAMSI era, MEHRD had other priorities and little interest in ICT-based initiatives in education. It is worth noting however, that HF radio still remains a major part of the technology infrastructure of Solomon Islands and is still used to broadcast information about education and educational opportunities to officials and teachers in remote locations (but not for educational content, and not by the ministry itself.)⁸¹

Solomon Islands did, however, participate in the One Laptop per Child (OLPC) Programme, as the recent PRIF report notes.⁸² A trial began in July 2008 at three primary schools in Marovo Lagoon, Western Province (Sombiro, Batuna and Patukae). Some 375 XO laptops were distributed to students and teachers. The Australian Council for Educational Research (ACER) was commissioned by the Ministry of Education and Human Resources Development (MEHRD) to undertake an evaluation of the trial.⁸³ The evaluation consisted mainly of qualitative interviews with teachers, students, parents and community members. An MEHRD monitoring and evaluation framework was used to evaluate the programme (Table 4.7). Despite the relatively positive findings, (primarily an improvement in children's attendance at school, and interest in learning) the programme was not scaled up. Problems with maintenance, training, and the lack of resources in the MEHRD to either extend or adequately support the program were also noted, and none are operational now.

A. The Solomon Islands Education Management Information System

The Ministry uses the Solomon Islands Education Management Information System (SIEMIS) to capture key data and disseminate information about schools, teachers and students. Surveys are sent out to schools once a year. This is funded and supported by the World Bank SABER project (Systems Support for Better Educational Outcomes.) According to a World Bank SABER report⁸⁴ the system uses the PINEAPPLES (Pacific Island Nations Evaluation Analysis Policy and Planning Leveraging Education Statistics) system, which is based a Microsoft SQL server, although the report comments that most of the features of this complex system are not used. Paper-based census forms are used to collect data from schools every year, and these are input into the SIEMIS manually. Assessment data, payroll, and other relevant data is not integrated with the SIEMIS database, and the report notes that although the implementation of the system was covered by a series of National Education Action Plans between 2004 and 2015, system is not supported by any official policies, which results in a lack of commitment to resources to

⁸¹ Interview with Richard Hellyer and Brian Sayer, 11/11/14.

⁸² See Minges and Stork.

⁸³ Ministry of Education and Human Resources Development .Evaluation of One Laptop Per Child (OLPC) Trial project in the Solomon Islands ACER, 2010.<http://wiki.laptop.org/images/0/0b/SolomonIslandsOLPCTrialsEvaluationByACER2010.pdf>

⁸⁴ World Bank. Solomon Islands Education Management Information Systems. SABER Country report, 2015. Available at: http://wbfiles.worldbank.org/documents/hdn/ed/saber/supporting_doc/CountryReports/EMS/SABER_EMIS_Solomon_Islands_CR_Final_2015.pdf

develop the SIEMIS as the Ministry's core system. It is worth noting, however, that the National Education Action Plan, 2013-2015 does include the goal of improving the SIEMIS and developing an Infrastructure and Asset Information Management System integrated with the SIEMIS to assist decision-making and prioritisation of funding for infrastructure and resources. It also includes the development of an ICT plan that can cost effectively improve two-way communication with provincial authorities.) Resources for this were eventually found, as evidenced by the ADB-fund project outlined below.

Data from the system is linked to the overall education strategy of ensuring equity of access, improved quality of education, and efficient management of resources in the sector, but the SABER report notes that “no audits are performed to validate the quality of data obtained from the schools” and that the entire process of data collection and dissemination takes approximately 13-16 months, which “reduces comparability of information across the education system”. Usage of the data is limited to the allocation of school grants. However, the Ministry of Education and Human Resources Development is now being connected to the SIG Connect network, starting with Honiara and the provincial capitals with connections gradually being made to the remoter islands. This is bringing better management of the ministry's financial systems, and more importantly, vastly improved HR practice. The education sector in the country has long been renowned for payroll inaccuracies and abuses. The connection to a centralized payroll system is already bringing major benefits, a payroll cleanout, the elimination of ghost employees, and a prompt and convenient payment system. This has brought efficiencies in supplying, maintaining teachers in classrooms, although low pay, lack of training, and absenteeism (for whatever reason) still hampers good educational outcomes for the children.

The ADB project mentioned above, and established in 2014, is aimed at further extending the use of ICT to improve education services. Its brief was to develop a gender-inclusive ICT plan to: link the Ministry with provincial education authorities and schools; identify hardware options, develop suitable applications, and pilot their use in rural and remote areas; build capacity, and assess how enhanced access to ICT can add value to distance and flexible learning; and convene ICT4E workshops to raise awareness and identify potentials and constraints. Specific activities outlined in the brief included assessing current baseline capacity, improving ICT capacity in the ministry and in the provinces, identifying online learning programs, including professional development programs, that could be adapted to local needs, the trialing e-learning in professional development, and the potential for partnerships with tertiary institutions in the region (SINU and USP).

The current members of the project team, with considerable experience in such projects, indicated an awareness of the pitfalls of endless visiting experts, lack of alignment with what infrastructure would support, and what was possible within the education sector. Examples of administrative improvement include better data capture, the use of portable ICTs for capturing data at source and transferring it to the ministry, developing school reporting formats and ICT-based teaching resources. Although the focus of the project was administrative efficiency and professional development, it raised interesting issues around the use of ICTs in education generally, what kind of education services would best suit the needs of

the country and the people, and how to harness local knowledge about ICTs as shown in the use of smart phones, mp3 players even in remote villages and exploit their potential for education. They identify the lack of leadership in the sector, lack of ICT skills amongst senior levels in the ministry (and in the political sphere), and also in those involved in teacher training (whether pre-service, continuing professional education (CPE), or the training of untrained teachers). However, some recent changes involving a partnership with USP for CPE, and some trials of the use of tablets preloaded with learning materials are starting to have some effect. (Tablets are also being used for data collection for the SIEMIS, and in a number of related projects, such as health, where data must be collected from remote areas.)

Education is one of the key development areas included in the National ICT Plan (which for some reason cites the National Education Action Plan of 2007-2009 despite the fact that there are two subsequent ones.) In clause 167 it lists benefits of “improved access to and use of ICT in education”, and outlines how ICTs could contribute to development goals, including quality of access to education, and access to all levels of education:

- Increasing the quality of education and access to all levels of education for boys and girls, including in remote locations and those with special needs.
- Implementing an improved and harmonized grants system.
- Monitoring and controlling teacher absenteeism.
- Identifying human resource development priorities through systematic,
 - reliable and timely data collection and analysis.
- Developing mechanisms to market labour and manage labour migration.
- Devising innovative non-formal education to provide skills training to those
 - who cannot continue with formal education.
- Supporting skills training schools focused on employment and targeted at
 - skill relevant to each province’s needs, strengths and comparative advantage. (p53)

The National ICT Policy sets out strategies to use ICT to reach those who have historically been excluded—children in rural areas without schools, women, students with disabilities. The Policy notes the opportunity for use of ICTs to create knowledge networks, provide continuing education for teachers (and manage absenteeism), and expand the range and quality of educational materials through online resources. Actions to implement these strategies include: ensuring schools have access to computers and other ICT devices as well as access to affordable broadband services; building teachers’ capacity to enable them to use ICTs for teaching purposes and teach ICTs, establish networks and use e-learning resources; build ICTs into the curriculum; build capacity in Ministry of Education regarding use of ICT in education and in education administration; explore use of ICT for improving adult literacy and vocational training, and distance learning; build ICT technical support through regional programmes and certification.

Overall, as with many sectors, the dependency on aid brings a large number of external actors, lack of a clear agenda for the sector, and conflicting goals set by external donors, not least around the purpose of education. As Lucy Mitchell noted, “The management of aid and the relationships that come with it often create an industry in itself. Aid management has created jobs and offices which sit alongside

regular educational institutions. These offices hold a considerable amount of power and can dictate the direction of the education sector.” However, as she also notes the “SWAP [Sector-wide Approach in Education] within the Solomon Islands has been very successful at reorganising the top level of the education sector and the Ministry of Education. It has also begun the processes of getting donors to better coordinate and communicate.”⁸⁵ This is clearly a priority in the sector.

16. The Ministry of Environment, Climate Change, Disaster Management and Meteorology

The Ministry of Environment, Climate Change, Disaster Management and Meteorology has recently begun work on a joint Solomon Island Government/ UNDP project to “improve corporate functions in the ministry and identify ways of delivering effective and efficient services for a more resilient Solomon Islands.”⁸⁶ This project, which will build on the earlier Strengthening Environment Management and Reducing Impacts of Climate Change in Solomon Islands project (SEMRICC), was expected to assist the Ministry to develop a new Corporate Plan for 2014-17 as well as a Human Resources Development Plan, and establish a Programme Management and Coordination Unit. The involvement of the UNDP, and the focus on Solomon Islands’ participation in global climate change endeavours will involve the Ministry in a number of ICT applications that will enable it to contribute and draw data from global and regional databases, as well as manage and share data within the Ministry and with other government agencies. The current extension of the SIG-Connect network will be invaluable in supporting this endeavor. More extensive use of ICTs in the areas of environmental and disaster management, and the use of ICTs, especially GIS systems for managing data and creating awareness of the issues, is a key plank of the National ICT Policy being put forward. (This section of the Policy also includes the management of e-waste.)

The Ministry uses the Meteorology web site to communicate basic weather and climate information to citizens, and provides daily and extended local and marine forecasts for all provinces, cyclone, flood and tsunami warnings, aeronautical forecasts and climate data. It provides live satellite animation images based on a satellite tracking system. The long term plan appears to be to put climate change data and disaster management plans on the web site but this has not happened to date, and there are a large number of empty pages and/or broken links. Summary information about the National Disaster Management Office is available only on the UN’s SPIDER (Space-based Information for Disaster Management and Emergency Response) Knowledge portal, which provides an email address for the Director of the National Disaster Centre.

⁸⁵Mitchell, Lucy. *ibid.* P 83

⁸⁶ UNDP. Solomon Islands Ministry of Environment, Climate Change and Disaster Management and Meteorology to develop its functional capacity, 13 May, 2014. (<http://www.undp.org/content/fiji/en/home/presscenter/pressreleases/2014/05/13/solomon-islands-ministry-of-environment-climate-change-and-disaster-management-and-meteorology-to-develop-its-functional-capacity.html>)

17. ICT Use in the Agriculture, fisheries and forestry sector

The majority of the Solomon Islands population is dependent on the agriculture fisheries and forestry sector for livelihood. The total forest area (nearly 80% of the total land mass) is 2.2 million ha, nearly all of which is under customary ownership. According to the Food and Agriculture Organisation of the UN, the logging industry represents around two thirds of export earnings. Sustainability of both forests and fisheries is a key issue for the country. Forest degradation and deforestation, due to unsustainable logging practices and clearing of land for palm oil) is already reaching unsustainable levels and accurate data is essential for planning. Data systems are emerging across all three parts of the sector to enhance management.

The Ministry of Forests and Research (MoFR) is responsible for the overall management of forestry resources in the Solomon Islands. (Protected area management falls under the responsibility of the Ministry of Environment, Climate Change, Disaster Management and Meteorology which is responsible for implementing the Protected Area Act (2010) and the Protected Area Regulations, both which came into force in 2012.) Reforestation is underway, and a plan for developing a national MRV (Monitoring, Reporting and Verification) system, and based on regional data is being established with financial support from the UN-REDD program. The Land Resources Division, (which handles forest inventory), and the Applied Geoscience and Technology Division (SOPAC) of the SPC in Fiji, which functions as a regional centre for gathering remote sensing data are assisting in the collection of data and the hosting of a regional forest monitoring web portal as part of a REDD+ programme.⁸⁷ Solomon Islands is only one of two Pacific countries in the REDD programme, and the benefits extend beyond the outcomes of the programme itself to the capacity building that it brings with it.

Neither the Ministry of Agriculture and Livestock nor the Ministry of Fisheries and Marine Resources has its own web site as yet, both being dependent on regional and international organisations and web sites (such as the UN SPIDER web site noted above, and the SPC) for getting their news and their publications out. Basic data and systems for both ministries are maintained by the ITCSU datacenter, accessible by SIG-Connect and this now gives access to Extension offices in provincial capitals as well, as well as providing them with internet access. According to the recent PRIF report⁸⁸, although the Solomon Islands Ministry of Agriculture recognises the potential of ICT in the sector, little has been achieved due to a lack of capacity and funding. The Ministry also produces a once a week 15-minute radio show on different agricultural topics. However, exposure to such programs is extremely limited with less than 1% of those with a radio listening to agricultural programs in 2013 (2013 People's Survey). Connectivity is weak and most extension workers outside the provincial capitals lack electricity let alone computers. The Ministry is hoping to equip extension workers with smartphones and tablets to share information with farmers. This is particularly relevant since graphical and video information could be provided using tablets, channels which

⁸⁷ The REDD Desk. REDD in Solomon Islands. (<http://theredddesk.org/countries/solomon-islands#forest-management>)

⁸⁸ Mingos, M. and C Stork. *Economic and Social Impact of ICT in the Pacific 2015*. Sydney: Pacific Region Infrastructure Facility, Asian Development Bank, 2015.

might have greater impact than radio, and counter the diversity of language and low levels of literacy in rural areas.

Past initiatives to enhance rural connectivity through ICTs, to promote rural development and enable better information sharing have been short-lived. Foremost among these was the People First Network (PFnet) developed through UNDP funding and the support of the UK, New Zealand, Japan and Taiwan. The project comprised an Internet Café in Honiara, established in 2001 with 12 workstations, which supported internet searching and email facilities. This was financially self-supporting for some years, and acted as a training facility for “a number of rural development stakeholders, and the general public.” The second arm of the project was a network of email stations located in schools, community centres and health clinics in remote areas of the country. Trained operators were able to send email message on behalf of customers at a nominal cost, the messages being transmitted by short-wave radio in batches several times a day. The network was used to trial distance learning courses in partnership with USP, link customers to a farmers’ technical and marketing advice centre in partnership with the Kastom Gadon Association⁸⁹ (funded by AusAid), and link by email to the indigenous business development service run by the Ministry of Commerce, which advises rural businesses and entrepreneurs and puts them in touch with investors.⁹⁰ Rural Link is still functioning, and promoting RICS (Rural Internet Connectivity Systems) which use specially designed, solar-powered low cost broadband VSAT solution for remote and rural locations.⁹¹ The business development service operated by the Ministry of Commerce has since grown into the successful Online Business Information Services (OBIS) project,⁹² an email service, and Fact Sheets, (based on enquiries from overseas, or summaries of previous searches) to support rural business and agriculture in Solomon Islands. The Fact Sheets are easily accessible by phone; the email service is subject to a small charge, but bank deposit details are provided.

The Ministry of Fisheries and Marine Resources (MFMR) is more advanced in its use of ICT. Although much of the data on fish stocks is collected manually, data for the HapiFis inshore survey is collected using smart phones and tablets.⁹³ Minges and Stork report that tablets are used to input fish prices from markets in Honiara and Gizo, and that this data is directly transferred from the tablets to the Ministry's Integrated Fisheries Information Management System (IFIMS) for analysis by MFMR staff. The Ministry has also put in place an MoU with Solomon Telekom to enable locals engaged in fishing to receive a discount on internet access for access this data. Tablets are also used to monitor fishing. Staff go out on boats to observe and input data such as catches, take digital photos and record locations using GPS as well as monitor illegal, unreported and unregulated (IUU) fishing. MFMR also has a satellite and GPS-based fishing surveillance system where the locations of all fishing vessels are plotted on maps and monitored by staff at headquarters using special computer software. Much of this work is supported by

⁸⁹ Still operating, see <http://kastomgaden.org>

⁹⁰ See the former Rural Link web site, still available at: <http://www.rurallink.com.sb/pfnet.htm>

⁹¹ <http://www.rurallink.com.sb/RICS.html>

⁹² http://www.commerce.gov.sb/Online_Business_Information_Service.htm

⁹³ SIG ICTSU Briefing Note. Mobile Data Collection Tools and GIS Reporting Tools.

the Oceanic Fisheries programme of the SPC, and the Pacific Islands Forum Fisheries Agency (FFA).⁹⁴

Overall, there are some valuable initiatives in the agriculture/fisheries to deploy ICTs for environmental management and economic development, although they do not seem to be a high priority for government. However, a number of these existing initiatives, including those in the area of meteorology and climate change, as well as the Solomon Islands participation in the ReefBase Pacific coral reef database, are referred to indirectly in the National ICT Policy under Section K. ICT for the Environment, ICT Objective 8, Strategy 1 (p60), and brought to the attention of the government. Some of the developments in fisheries noted above are also included under National ICT Policy Objective 7 in Section J. ICT for Business, notably Strategy 7.2 (p58) “Develop mechanisms to support businesses in key sectors of Solomon Islands’ economy.” Related actions include: developing systems to provide accurate and timely information on commercial fisheries for all stakeholders, including the private sector and regional organizations; developing a network for coordination between national, provincial and community levels to facilitate sustainable development of inshore fisheries and shift from "open access" to "managed" fisheries in partnership with resource owners and fishing communities; and developing a network to share information and promote community-based, small-scale producer activities by providing access to markets and fisheries infrastructure.

18. The use of Web sites by government agencies.

Only a small number of the 24 Solomon Islands government ministries use web sites to communicate with citizens, other agencies or the international community. The few that do include the Office of the Prime Minister and Cabinet (not currently accessible), the Office of the Auditor General, the National Parliament of Solomon Islands, the Ministry of Finance and Treasury (including Inland Revenue and Customs and Excise), the Ministry of Commerce, Industry and Employment, the Ministry of Education and Human Resources Development, the Ministry of Environment, Climate Change, Disaster Management and Meteorology, and the Ministry of Provincial Services. These all, to varying degrees, have useful information, reports and publications and downloadable forms, as noted above. For other ministries, some crucial pieces of information are posted/hosted for ministries without web sites on the Ministry of Commerce or Ministry of Finance web sites, and some key information is found on other Commonwealth sites. A significant number of other government agencies, including the Public Solicitor’s Office, Telecommunications Commission, Central Bank of Solomon Islands, Visitors Bureau, Solomon Islands Electricity Authority, Solomon Islands National University, Ports Authority, and Solomon Post, have their own web sites.

Some agencies make use of their key partnerships to host web-based information, for example the National Statistics Office is hosted by the SPC’s PRISM site, the

⁹⁴ Western and Central Pacific Fisheries Commission. Scientific Committee. Preliminary Report on the Solomon Islands Longline E-Monitoring Project. WCPFC-SC10-2014/ST-WP-03. Marshall Islands, 2014.

Solomon Islands Meteorology Service uses the Pacific Climate Change Science Programme⁹⁵ to promote information about the situation in Solomon Islands and the Climate Change Assistance Programme sends information to the Global Climate Change Alliance.⁹⁶ The Ministry of Fisheries and Marine Resources, and the Disaster Management Office both have a web presence on the UN SPIDER web site. Some agencies do make use of Facebook for current events information and notices, possibly because they know that people go there via their smartphones, and some of this information is very out of date too. And Facebook is not really a vehicle for trustworthy information, or a channel through which governments should seek to disseminate official information, and interact with citizens on statutory matters such as license applications, tax obligations etc. It is a useful medium for drawing attention to official information channels, but does not in any way replace them.

Most Pacific Island nations (and most developed nations) use a government portal to present information about their country and their government on their own terms, and to pull together links to other sites containing government information. A portal web site (www.pmc.gov.sb) was developed for Solomon Islands, funded by UNESCO and launched in 2006. The site was intended to fill a gap since Solomon Islands was observed to be one of the few Pacific countries with no official web presence. The site was launched by the Permanent Secretary to the Office of the Prime Minister who stated “the Solomon Islands Government is aspiring to enhance its information and communications technologies in order to enhance its services to the people and promote transparent and effective government.” The Secretary talked about building an internal audience in Solomon Islands for citizens and residents needing access to “laws and the official instruments of government” as well as the initial international audience which would use the site, adding “as rural and provincial links are developed and internet access generally increases in the country ... ICT facilities will provide a greater focus for the development of e-Government with the delivery of online services and the means by which the local people can be better informed of and consulted about important public policy issues.”⁹⁷ That site is no longer available, but the end result is that information about government processes and policies is not very available to either citizens or an international audience. In the 21st century, the web is used by most countries to provide accessible and current information about government decisions, policies and procedures, and the rights and obligations of citizens. It is a key to the success of the proposed National ICT Policy, since much of the information dissemination and consultation proposed there would be web-based accessible via mobile telephony. When internet access does improve as it has started to in recent years, there will still be limited access to important information unless a strong web presence for every government agency, and a central government portal becomes a reality. This too, will need an urgent increase in web skills and capacity.

Honiara City Council

⁹⁵ http://www.pacificclimatechangescience.org/wp-content/uploads/2013/06/13_PCCSP_Solomon_Islands_8pp.pdf

⁹⁶ <http://www.gcca.eu/national-programmes/pacific/gcca-solomon-islands-climate-assistance-programme>

⁹⁷ UNESCO, Solomon Islands Government launches official web site.

The Honiara City Council has shown a lead in its use of the web for disseminating essential information for Honiara residents. The Honiara City Council web site, developed and hosted by the New Zealand web company Spiral, was launched in November 2014. Contacts and information are clearly displayed, and the simple design is suitable for use on smart phones, and calling the council number can be done directly from the web site. The site includes information about the application forms necessary for building and other activities, where to get the forms, and what other documentation is needed; it has downloadable forms for liquor and business licenses, and as the employer of teachers in the city, the necessary forms teachers are required to submit for absences etc. The web site contains information about the Council, its function, annual budget, and the services it offers (although the Mayor and Councilors are not named and their contacts are not given); it lists the city ordinances and links to these online. The HCC also runs a range of health clinics (locations and hours open are provided) and health information is an important part of the web site. Unfortunately the Have Your Say page was not available at time of writing, but a full search facility is. The Honiara City Council makes active use of social media, using its FaceBook page to post current events, and seek comments, and encourages participation in the Facebook forum FSII (Forum Solomon Islands International) both of which are channels for public participation. However these do not replace the need for direct feedback on the HCC site itself.

19. Conclusions

Despite the lack of web site use for promoting government information and services in Solomon Islands, the level of ICT use by government agencies is comparable with most other Pacific Island states. In some areas it is more advanced, e.g. the implementation of the Electoral Roll system in 2014, the adoption of DHIS2 (Solomon Islands is one of only two Pacific countries using the software, even though it is not using it well), the use of ICTs in the National Parliament, and the current work being done to create a Justice Management System. Overall there is considerable achievement to be noted for a country of just over half a million people, with all the challenges of a dispersed remote island population, a tropical climate, low levels of literacy, and a subsistence economy that most Small Island Developing States face. But in some areas it is less advanced than some of its neighbours, and still recovering from the impact of the “tensions” and rebuilding a functioning bureaucracy.

There are two key factors that impact positively on the use of ICTs in government, the ICTSU, and the impact of RAMSI and the aid still flowing into the country post-RAMSI. The ICTSU has played a very significant role in developing and promoting the SIG-Connect WiMAX network, and demonstrating the value of ICTs in government as well as how to deploy them securely. The centralized Accounting, Financial Management and HR system it has put in place is one of the most effective strategies against corruption that can be implemented. It has worked diligently with agencies to understand their needs, and develop systems that can assist them in their core business. It has taken a cross agency and Whole of Government approach that has helped counter the tendency of donor-funded projects to focus on the solution of problems in isolation from the bigger picture of what the government is trying to achieve. Its current focus on building bottom up cross-agency solutions, funding

developments largely from agency budgets, and building capacity is leading Solomon Islands in the right direction. It is essential that the National ICT Policy, if adopted, is implemented in such a way as to enhance the work done by the ICTSU, consolidate its role at the operational level in government ICT, and involve it in policy decisions related to some aspects of government ICT. It has done more than just manage the operational side of ICTs and its momentum and its expertise must not be lost.

The impact of RAMSI has also had many benefits, in particular, generous post conflict funding from Australia and joint ventures supported by both Australia and New Zealand who have worked more cooperatively in Solomon Islands than in many other places. The number of projects that Australia funds and that Australian technical advisors have made a major contribution to are considerable. The Central Accounting/Financial Management and HR system, the implementation of ASYCUDA, the ICTSU itself, SIG-Connect and the Whole of Government Information System, the EPOG project, the Central Bank, the CRVS system and ICTs in the National Parliament are only a few of the Australian supported projects, although many are now self-supporting. But this generosity can have a downside, as noted by Mitchell in her thesis on the PRIDE Project in the education sector, and others—the proliferation of competing projects, the distortion of agendas to fit the demands of aid agencies, and ongoing aid dependency. There is still a pattern of ad hoc projects driven by donor perceptions of need, and international initiatives which do not always find a champion within the ministry they are intended to support. Sustainability of ICT projects is dependent on identifying needs and ensuring local ownership, and that means including ICTs in agencies' budget allocations and agencies working collaboratively to identify sectoral priorities. The Justice Management Information System is a good example of what can be done using such strategies.

Setting sector priorities and national priorities through consultation with all national stakeholders is imperative, and the time is ripe for the Solomon Islands Government to put in place a process for setting its own priorities, for taking the initiative for its own future. The proposed National ICT Policy, which also sees this as a first step, is comprehensive, and covers most of the key issues that need to be addressed, especially the legislative framework that is urgently needed, and the need for leadership, which will come through the creation of a National Information Office, and a government CIO. At present it covers all the operations of government, but at a fairly high level, taking a mid- to long-term view of what needs to be achieved. It stops short of setting priorities, and perhaps gives insufficient credit to the very significant achievements of the ICTSU, which include not just the network and ICT support it has set in place, but its ability to work with agencies and to demonstrate how government processes benefit from ICTs. The ICTSU's focus on sustainable applications, data security, efficiency and data sharing, and its ability to maintain good relations with aid agencies and regional partnerships have been a significant part of its success. The proposed National Information Office and CIO will need to work with the ICTSU, and build carefully on the groundwork that has been done.

The National ICT Policy, with its advocacy for a National Information Office and a national CIO who would lead the initiative follows models that have worked well

internationally and locally.⁹⁸ But crucial to the long term success of the ICT Policy and the identification of the priorities which must be set is a strong Solomon Islands voice. The Policy advocates the recruitment of an “expert in public sector ICT”, for the post, which suggests that an external appointment may be considered. In addition, the Chief Information Officer is charged with developing a National e-Government Strategy “in collaboration with donor agencies” (paragraph 140), and much of the work outlined in the subsequent Strategies (131-140) assumes some considerable authority with other government agencies.⁹⁹ This must be balanced by local expertise and local input. The Policy would be strengthened by the inclusion of a high level Advisory board made up of government CEO’s and local experts. This would minimize the risk of placing an agency which is envisaged as central to the further development of government operations in Solomon Islands in the hands of an international expert with minimal long term accountability, and with powers that potentially exceed those of the heads of most other agencies. We see it as essential for the ongoing development of Solomon Islands that this senior position in the Solomon Islands Government is, if at all possible, held a by a Solomon Islander, supported, as needed, by technical advisors and deputies who may indeed come from a field of international e-government experts, and an Advisory Board, chaired by a government CEO or permanent secretary with a strong commitment to the advancement of the principles outlined in the National ICT Policy. This level of local leadership and ownership is essential to the success of the Policy. It must not be dependent on aid agencies and international experts.

A key element of the National Policy therefore, and one of the most urgent tasks going forward, should be to focus on capacity building by giving responsibility to Solomon Islanders at all levels. It is they who need to put in place and oversee the strategies, applications, systems and data management which will produce the accountability and transparency in government policies and transactions that will end the corruption that continues to plague the country.¹⁰⁰ It is they who are best placed to understand which educational and public health materials can be disseminated using the web and mobile technologies and which must be communicated in person at village level. It is they who are best placed to conduct the necessary consultation to determine what the educational outcomes should be for each level of the education sector and what local content should be digitized and in what languages.

⁹⁸ Vanuatu’s OGCIO is widely acknowledged in the region as a ‘star performer’ offering outstanding leadership, working with an increasingly centralized model. Its work has been set back considerably by the extensive damage caused by cyclone Pam early in 2015, a hazard that must always be taken into account in a National ICT Policy for a Pacific Islands country.

⁹⁹ The Policy refers to international models which are not the most relevant, but does not mention lessons learned elsewhere in the Pacific, most notably in Vanuatu, which has long since put in place a Government CIO, located in the office of the Prime Minister, the role held by a ni-Vanuatu who, while supported by international consultants, has personally led a very impressive record of achievements in e-government in Vanuatu.

¹⁰⁰ See retiring High Court Judge Stephen Pallaras’ comment at: <http://www.abc.net.au/radionational/programs/lawreport/solomon-islands-hc-judge-speaks-out-v2/5912956#transcript>

Returning to the benefits that Pacific Island states can expect from the introduction of ICTs to government which are outlined in Boase's 2009 report as set out in the Introduction, namely.

- *More accessible government information and services;*
- *Faster, smoother transactions with government agencies;*
- *Increased access to government decision makers and to parliamentarians;*
- *More local access to government through the internet;*
- *Increased participation in government by all;*
- *Increased efficiency in government operations;*
- *Enhanced opportunities for smart partnerships with civil society and the private sector;*
- *Legal recommendation and security over the networks. (Boase, 2009, p2)*

It is clear that most of these are still to be achieved. Greater efficiency in some core government operations (payroll, financial management, procurement, revenue and border control, national statistics) have clearly been achieved, and further projects to achieve this (such as the Justice Information Management System) are underway. Some such as “*more accessible government information and services*” and “*faster, smoother transactions with government agencies*” have begun with those agencies that have made information and downloadable forms available on their web sites. SIG-Connect is establishing the trust in the security of the network that the last benefit requires. But *increased access to decision-makers* and *participation in government by all* have yet to be seen. With the rapid advance of mobile technologies, the cost of telecommunications expected to decrease and access to telecommunications increasing, these benefits are certainly achievable. Increased use of web sites by government agencies, more openness in the dissemination of government data, and perhaps some *smart partnerships with civil society and the private sector* are the way to achieve this. Efficiency in government must be balanced by accessibility of government if democracy is to be served.

20. Interviews

Ronald Amigo, Deputy City Clerk, Honiara City Council

Paul Asitewa, Deputy Director, Technical, ICTSU, Solomon Islands Government

Dr Audrey Aumua, World Health Organization (WHO) Representative in Solomon Islands

Niall Downey, CEO BMobile Vodafone Solomon Islands

Bernard Hill, Commissioner, Solomon Islands Telecommunications Commission

David Leeming, Principal Consultant, Leeming International /Solomon Islands Rural Link

Brian Lenga, Director, Commonwealth Pacific Governance Facility, Honiara

Minnie Ora, Financial Controller, Ministry of Justice and Legal Affairs.

Sheryl Scott, HRMIS Manager Ministry for Public Service, Solomon Islands

Sascha Piggott, Australian Aid Program (Dept. of Foreign Affairs & Trade),

Ministry of Health and Customs & Excise Division, Solomon Islands

Richard Hellyer, MEHRD, Senior Education Advisor

Moffett Maeno, ICT Support, National Parliament of Solomon Islands

eGovernment – Solomon Islands

Ian Rakafia, HR Manager, National Parliament of Solomon Islands

Brian Sayer, Distance and Flexible Learning Advisor, Ministry of Education and
Human Resource Development

Beau Tydd, Strategic ICT Adviser to Solomon Islands Information

Communication Technology Support Unit (ICTSU) under DFAT funded
Solomon Islands Governance Facility.