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TOWARDS A BETTER INTERNET IN THE PACIFIC

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>> MAUREEN HILYARD: Good morning everyone. We're going to start now because we've got a few of us here today, but we have got quite a lot to get through. So let's get started.

First of all, introducing the team up here. I'm Maureen Hilyard. I'm the Chair the Board of the Pacific Islands Chapter of the Internet Society, and also I have an Internet group in the Cook Islands, the Cook Islands Internet Action Group. And so that's my association with the Internet group.

And I would like to introduce Anonga Tisam, who is actually the vice Chair of the Cook Islands Internet Action Group and he is also working in the ICT unit of the office of prime minister in the Cook Islands.

We have Gunela Astbrink, who has been a very strong advocate in the Pacific for People with Disabilities and her presentation today will be related to that.

And we have another very active member of the Pacific islands chapter, Daniel McGarry. So we're sort of like covering -- covering a little area of the Pacific region, which consists of all of that area, and the Pacific Islands Chapter of course encompasses -- has its membership from a lot of those countries.

Right. So I'm going to start, and we're sort of like -- we were originally eight members and we're down to four. It gives us a little more time to sort of like do our presentations, and we hope you enjoy and learn a little bit more about the Pacific from what we're going to provide for you this morning.

Okay. My presentation is really to do with -- the conference was towards a better Internet, and what we are looking at is what are some of the influences that impact on -- on sort of like the development of the Internet in the Pacific, and I'm going to be looking at environmental influences and I'll be focusing on two case studies in the Cook Islands to give you an idea of some of the difficulties, perhaps, that are experienced by other small islands in the Pacific as well.

We have 15 islands and two are inherited but the two islands I'm going to be concentrating on -- I live on Rarotonga, which is the main island of the Cook Islands, and Aitutaki to the north and Mangaia to the south. Two quite different islands, actually. We're looking at, for example, Aitutaki. It's an -- sorry, whoops. Four kilometers of reef around this beautiful clear lagoon, and it's -- you know, it's got -- its highest point is 123 metres above sea level. It's got pretty good -- it's got -- the access is pretty good on the island, telecommunications, and its population is about 2,000. Okay. It's only a tiny island so 2,000 is quite a lot.

And then we're comparing it with Mangaia, which is a large rock, it's just a mountain in the ocean, and it's actually about the same size as Rarotonga, but this island only has 500 people. And it's like the most southern of our islands and it's because it's supposed to be one of the oldest islands, if not the oldest island in the Pacific ocean, so -- and during its lifetime, it's been raised three times through eruptions, three times by volcanic -- by volcanic action, so it's got heaps of caves and cliffs and quite a dramatic-looking island. It's got a little bit of broadband and WiFi, and there are episodes I'll explain later on, but the population, as I said is 500. If we're looking at Mangaia there are features that could be promoted, but of course it's never going to be able to compete with a place like Aitutaki, which is considered to be the playground of Cook Islands.

But of course in 2010 it experienced what is a pretty common occurrence in the Pacific during what is called a cyclone season between October and April of every year. So in -- in February 2010, Aitutaki, which is to Rarotonga's south, it was just right under the eye of the storm, in this picture. So it basically swept through and destroyed 80% of the residences on the island, residential properties. What happened was we had a recovery program that cost $6 million, so the government actually put in $6 million to reconstruct Aitutaki back to its normal -- what it was before the cyclone, so a major investment by the government into the whole infrastructure on the island to get it back to its pristine tourism best, because it was given that priority. But New Zealand and Australia came to our aid, and they were there almost immediately after the event, and helped -- helped to restore -- provided the funds, which actually helped to restore it back to normality.

One of the things I've been doing lately is to look at, okay, what impact do these sorts of events have on the islands, especially as -- you know, once people leave the -- you know, things happen and people leave the deep populations, lots of lack of human resource and also a decline in the number of services that can be provided. So what we -- what I did find was that the population in Aitutaki despite the fact that every year there's some cyclonic activity, the sort of like population hasn't declined all that much. Different from Mangaia, because it's lower down in the Cook Islands, when the cyclones come through, and they don't actually get much action on that island, and because it's so big, people are quite protected from it. So my sort of thinking is, well, why are people leaving? I mean, you know, where it says 2000, the following year -- 1996 when the census was done, you'll find that all the islands, in the Cook Islands, 1996 there's a big drop and that was because that was the opening -- 1974 was the opening of the international airport to Rarotonga. It was a mass migration from the Cook Islands and to Australia. Like Mangaia, like -- you've got this giant island with 500 people on it and the government as far as they can see does not consider that a priority for any real investment.

A similar trend can be seen on another island which is not very far away from us, another country, Niue, where it too has suffered quite a big deadline and continuing in relation to depopulation, and talking to -- a member of my board, he comes from Niue, he says that the problems are the same as in the Cook Islands, people leave because of employment opportunities, educational opportunities for the children, and also for medical reasons. Our hospitals aren't that great so if you have something that really needs medication, you end up going to mainly Social Security from the Cook Islands and Niue, for treatment.

So I mean, the trend sort of like is showing to be quite -- the population pyramid shows that -- oops -- shows that the -- the age range that there's a big depletion is the net age-group -- in that age-group, 20 to 40. So you've got quite a -- that's your main part -- the main area of people sort of like wanting to (off mic) who would be needed, it would be quite healthy to have on an island, they're not there. So you've got an aged -- an aged -- aging population and also a group of very young -- young people on the island.

So for Mangaia, telecommunication-wise, why would you bother -- the government is thinking why would you bother for 500 people when you could be doing renewable sources of energy and other things they're interested in doing, but telecom on Cook Islands has taken an interest in Mangaia. It sort of like is using Mangaia as a petite sort of project, as a project for looking at ways in which the Internet could be used to help develop the island and its services, and also, as I'll explain, the things that are important to the community. So they've got cellular sites, they've got WiFi. I go to a hotel, stay there, and one of the first thing I asked is if they could set up WiFi so I could actually communicate from the island to where I wanted. And so I've done that free of charge. They have -- they've offered quite a lot of services. They've set them all up so that the island can actually move ahead, and when we (off mic) which you'll hear about, those services.

But one of the things that I did learn while I was there at the beginning of the year is I talked to the community about like how important the development was for them, and they -- I was able to sort of like go with the island administration to the village meetings that they were having at the beginning of the year, and found that for them, low water supplies, pour -- poor electricity service, the terrible roads they've got on their island took priority. ICT came way down the list. But when I offered some community training during the two weeks that I was there, every day there were people there coming along and asking for advice and support on how to -- and some training on using the Internet, mainly, you know, how to get an email address, how to send an email, how to -- one guy wanted to know how to text. Of course the first thing I had to do was get a mobile phone, but those were the sorts of things they were really keen to know about. So the interest is there. So, you know, we're slightly -- consider telecom is coming from, we can definitely move that ahead.

Also, there's a Facebook on Mangaia, and what this Facebook does is actually -- it's actually managed by the tourism office there, but what it does is it keeps people who are off the island informed about what is happening on the island. It's in the local language, which is something we're really pushing, but it also helps to remind them of customs that actually sort of like happen -- you know, that are part of their cultures, and all those sort of pages that I have, there were lots of comments coming from people, family members and that from overseas.

But -- got time. I'm just watching them watching me. One of the things -- a point and it really came out yesterday when people were talking about Telecentres. One of the things that I sort of looked at and discussed with the island administration was the establishment of a Telecentre, especially when the people who were coming to me were mainly elderly people who didn't have the access to computers in their own homes, they didn't have -- and someone didn't have phone connection, and they certainly didn't have computers, but they were keen to keep in touch with their families. They wanted that opportunity to be able to do that. So I talked with the island administration. They were in the process of reconstructing an old residence, and when we went through the design of what we could include in it, we were actually able to get a room for the Telecentre, the USP got facilities for ongoing (off mic), and there's a museum. The whole point of this is that they got a multi-stakeholder board, which actually manages it -- governance. The tourism board will manage it. USP provides supports, telecom provides support. Island administration will maintain the building. It is a really community-driven sort of like option here for -- for the community to take advantage of and make use of the facilities, which the Cook Island action group -- providing for the Telecentre.

But I think that one of the important things is that, you know, like we -- with the island administration, we just made a point that the support for the Telecentre and anything that we provide for them is on the proviso that everything that the elderly and the disabled get free use of Internet services that, you know, they get access, so that's sort of like one of the options that we've given to them, and they've agreed. So what we've done then is -- whereas in this particular instant, Aitutaki will get absolute support from the government because there is a big (off mic) the Cook Islands. Mangaia doesn't get that support at the moment but it is something that the Internet group and the island administration will be working on. So there you go. Thank you.

>> Thank you again. What we'll do is we'll go through. I'm also going to be talking about the local content thing, really try to push their Internet development.

>> ANONGA TISAM: My name is Anonga Tisam from the Cook Islands. Currently representing PICISOC but I also work for the government in the ICT unit. Today I'll talk about language, culture and the Internet in terms of the Cook Islands, and most of these, what I say here will apply across the board to the rest of the countries as well.

Just a brief overview about what we'll cover today. We'll talk a bit about the Cook Islands. I know Maureen has covered most of it so I'll quickly go through some of that. I'll look at some of the challenges we face in terms of putting local content on-line and from a small island developing state like the Cook Islands. I'll look at some of the opportunities that the Internet does provide, and then I'll look at some of the initiatives that have been happening in the Cook Islands.

The Cook Islands database, I'm the developer of that project and I'll talk about some of the lessons that I've learned, which may be a little bit controversial, but what the -- and then I'll finish off with some closing remarks.

So just quickly, we're a small country under -- just under 11, 12,000 people, spread over a large geographic distance, about 2 square kilometers. Most of it is ocean. And it takes about four hours to fly from the north -- the southern most group to the northern most group if you're traveling on arrow -- Air Rarotonga, which is our local airline. We're isolated. The only way we can connect to the rest of the world is through geostationary satellites, but they are slow and expensive and most people consider having Internet at home a luxury, but that could all change with this thing here, the O3B system that's coming, and I'll talk about that a little bit later. We're in free association with New Zealand, which means we have all the privileges of New Zealanders, but we are self-governing, which means we make our own laws and have our own (off mic).

Our economic model, Maureen did talk a lot about that. Tourism is a big thing, a small island tourist economy. That's what the site stands for, but we're also a (off mic) economy, which means the MIR stands for migration, and remittances, so I mentioned before, a lot of Cook Islanders have migrated overseas. It's estimated that 90% of our population is overseas, larger than Australia and New Zealand. The AB stands for Aid in Bureaucracy. There's a lot of aid money that comes in and the bureaucracy that manages that. We have a decreasing population so depopulation is a problem. Most of the population lives on Rarotonga and most people can speak English, if not all people.

Cook Islanders. Challenges. So just a few of the challenges, and this is mainly focused on language. There's been a general decline over time in the use of Cook Island Maori language. The media and Internet is dominated by English even at home, and the decline has been seen largely in the youth living on the main island of Rarotonga, which is here, and the population living overseas. So we -- and in the early 2000s we made it onto endangered languages list and that's -- Tonga is the most vulnerable and the other one is severely endangered. Things might have changed, might have gotten worse. This is from the early 2000s. It's not helped by declining population especially in the outer islands and that's where most of the indigenous speakers will come from. But with a population of 12,000 the -- around 12,000, the tax base for trying to support any of these things is limited from government.

But there are opportunities and there's evidence to suggest that most Cook Islanders who are overseas relearn their culture and their language, and the Internet has created new opportunities and ways for that, but the question is how do we leverage the Internet to help preserve our culture, so that's the key question, and I'll try to address some of the things here.

So we've got a lot of big challenges, one, of course, is the cost of access to Internet. The other is capacity, not only the capacity to use the Internet to access information, but also to create indigenous content, so stuff like developers, content creator, those are very key to getting indigenous content to the Internet. And of course capital, money. Those are big things. We're slowing beginning to find solutions and they're not what you would normally think of, and I'll talk about a few initiatives and then I'll jump into the Cook Islands database and what we've done and the lessons I've learned.

The Te Maeva Tui is a culture festival. It's an annual performing arts festival and brings in all different people from around the islands and the districts on Rarotonga and they compete in this cultural extravagance a for prize money. It's funded and backed by the government, and it's run by the Ministry of Culture Development. But the key thing here is that all young people consider it cool to join into a group and represent their island or district, and we're guessing the main driver of that is because of the fierce competition amongst the teams and the pride in representing your island or your district.

A measure of success is the amount of illegal uploads of performances on YouTube, because even though the -- the event is closed, you still find stuff up on the Internet and it creates a general buzz around the community or Cook Island, spread all over the globe, and Cook Islands overseas is trying to create their own culture festival, and I think in Auckland they did one and posted videos on YouTube.

Another one here is the Maori Bible, which is a digitization project and it's backed by the Cook Islands Christian church and following in the steps that have been done by -- using the Maori Bible. It's a two-year project that aims to finish by October, and the data entry is done by volunteers drawn from the congregation, so -- the data getting the dictionaries digitized. They have plans for an Android application to be developed and I've been asked to assist in that. Whether we develop it locally or outsource it, it's still early days yet.

We've also got a biodiversity database. It's an on-line species database and it stores all the Maori terms for plants and species with translations with the scientific names for those species. The key thing here is they also develop Cook Islands Maori keyboard, which is a free download that you can use to install the keyboard on to Windows, and then that lets you type out the pronunciations for -- the punctuations for the Maori language, which is in the background, which you need to accurately read a word and then know how to pronounce it. It's mainly driven by Gerald McCormack, who is ex-pat that's been living in the Cook Islands for a while and has been backed by the national heritage trust, which is an NGO and a government organization and in the past it's been funded by variation organizations, including New Zealand and UNDP.

The Cook Islands database project. This is the project I'm responsible for that I've been developing. It's a 6,000 plus database of Cook Islands Maori words with English translations and example usage, and if I have time I'll show you a quick demo of what it does. We use local developers, used to be myself and another mate. He left to go work in the mines in Australia. We leverage open source software, just because we can't afford anything else. But we've also built some of our own technology as well. The sources come from two main sources. In 1995 there was a dictionary published, and that contained -- this is where most of the words come from, but we also have an older one from 1962. The reason -- they are slowly being lost so we're trying to digitize that, and we also get public contributions via Facebook and the Web site itself and emails.

We've recently -- the best search engine and the most friendly interface and this is from the University of London, Facebook page. We're also building an early Android prototype using of the fund gap framework. But I just need to find time to keep building it. It's self-funded, so most of it comes out of my own pocket, but we are seeking funding from (off mic) expanded development.

Okay. So some of the lessons I've learned in terms of putting stuff up on the Internet, especially coming from a small Pacific island country like ours, I'll go through those. Challenges and solutions. Copyright, ask for forgiveness instead of permission. So flash drive with the eCopy of the dictionary on it and within three months I had it up on-line, and no problems so far. Capital and money, there is none so don't expect any. So try to beg, borrow and steal whatever you can to get what you want done. The borrow and steal are interchangeable, but I'll give you an example of beg. I had a $3,000 Internet bill while I was building this system. I went to Telcom and asked them to get it cleared, and I got a sponsor for six months so I could keep developing the database, so they gave me free Internet, which was great because the Internet connection back at home is quite expensive.

Sure you can go to donors, but you end up with a bureaucracy war and in reality most of the aid money goes back to the foreign consultants and foreign companies and there's another project that does exactly what I did, and it's built by foreign companies -- foreign company, but they are having problems because they -- because it's just an empty shell. They only built the Web site but they didn't put any data.

Capacity and people, it's hard to find and develop talent or people that are on the island to create these things. Sometimes they don't even exist but that forces to prioritize and focus on what's really important, and it also affects the technology choice and the most critical factor for us when we're developing this was what technology would help us maximize our productivity, and the other thing is to reduce the complexity. We ended up having to build our own tools but we also leveraged a lot of open source stuff. And that's just because that's just a need. I'm the only guy running this thing and building it.

Time. That's one thing I don't have. There's a high cost of living, I have to work two jobs to pay all the bills including the one for the project. So I live at home with my mom. Closing remarks. Do what works. People have different models and different ideas about how things work, but for a small island country you have to find out what works, and don't be afraid to fail. Fail often, do it quickly but try to do it cheaply and then learn and move on. You need to find out what works for your situation, and that's especially true for small islands states because no one knows.

Resources are limited so it's really important to prioritize what's really important. We weren't able to get all the punctuation marks right, but we did get what's most important, and that's all the words inset on a nice clean search interface and a user-friendly thing. If you can, try not to reinvent the wheel and don't be afraid to beg, borrow and steal what you need because you can always ask for forgiveness later. Okay, the end. I'll quickly show you, if I have time, do I have time? Two minutes. The project, if I can.

So this is just the basic interface. Type in in English or Maori word. The ocean. And it should give you one ocean, deep blue, that's the outside barrier. Still another one. Let's do a Maori word, so let's do -- (laughter) gumana, eat, consume. There you go. Same thing. Thanks. I think that's it.

>> GUNELA ASTBRINK: Yes, good morning. I'd like to talk about disability and disaster risk management, which is obviously an -- area in the Pacific. Just to talk about disability first of all, there's often different definitions about what disability means, and really disability can be classified in a lot of different ways, and here we're talking about many different people. (off mic) laws. When I talk about laws, that might be people who have macular degeneration, a lot of different types of hearing loss. As we get older, many of us have reduced hearing, and need assistance with hearing aids, and it can develop into deafness. People with physical disability, and that can be a very wide range. It might be the obvious one is a person in a wheelchair, but we're talking about might have cerebral palsy and might not be able to use their hands. It might be someone who has learning difficulties as well as (off mic), and people -- and we need to -- need to think about (off mic) they're functioning.

Now disability statistics -- but importantly there were (off mic) Australia, for example, euros (off mic) percent. So it's all very much about the definitions of disability. We have to remember that there are many people in developing countries, actually -- there's also a high proportion (off mic). And again, disability really should be looked at as a social model in the -- where if a person needed to be fixed, you go to a doctor, you have a complaint and the doctor fixes it. With disability it's something we view -- to be alive and therefore it's not something that can be fixed as such. So we're really turning it around with a social model and saying the community needs to reduce barriers to include People with Disabilities. And you'll hear me talking about -- and really we've heard the word inclusion yesterday -- talking about the stakeholder. Really here we have another instance of inclusion in social model.

Now, the Internet plays a very key role here. For People with Disabilities, communication is vital. If you think about a person with a speech impairment on a face-to-face level, it might be difficult to get your message across, even though there are assistive technologies to do so, but for a person with a speech impediment, they could send an email, contribute to blogs and communicate, and the other person on the other end wouldn't know that the person has a speech impairment.

Employment, obviously employment is really important for everyone. But for a person with a disability to be -- to be considered as a valuable part of the community and to be able to contribute to the workforce is really important, and the Internet can play a role when it comes to how particular technologies are presented.

Okay. I think that's probably a better sound now. And finally, participation. Participation, we take for granted participating in the neighborhood we live, in the community as a whole. Sometimes People with Disabilities are very isolated in a way, and the Internet has the capability of increasing participation. So again, we're going to talk about inclusive design, and this really means designing for the whole community. We probably take for granted the -- on streets and the equal entrance to buildings, often with automatic opening doors. But these are -- initially they were designed for people in wheelchairs, but they used by cyclists, delivery cars, people pushing trams, and this is what we term inclusive design. It means it's designing for the whole community.

We have to remember that there is the United Nations convention on the Rights of Persons with Disabilities. This has been signed and ratified by over 100 countries worldwide, and Article 9 in the U.N. Convention talks about the right to equitable access to ICT, and also in another Article talks about the right to information.

ISOC, its motto is Internet for everyone, and so obviously the People with Disabilities are included there. I was fortunate to write a policy paper for ISOC, and I've provided the URL there, and it's about Internet accessibility, the Internet use for Persons with Disabilities and moving forwards.

So let's look at the Pacific, and capacity building in the Pacific is an important feature in a number of different areas, and certainly when it comes to disability awareness and incorporating disability and inclusive design in the development of a particular ICT products and services. I'm a board member of the Internet Society of Australia and also a member of PICISOC, and we were fortunate to receive ISOC community grounds, and one was about capacity building in the Pacific with advocacy and inclusion -- including accessibility in policy development, and that's been run in -- as part of a number of meetings over the past few years, and also we received an ISOC community grant for workshops explaining how chapters can actually help to raise awareness within their own communities.

And PacINET -- the annual PICISOC conference invites people with disability to demonstrate their use of the Internet, and here you see someone who spoke at the PacINET in Papua, new Guinea.

I'm afraid that the photograph is right in the corner and a lot of us can't see it, but it's actually there.

So People with Disabilities -- you can imagine that People with Disabilities and their families are very vulnerable when it comes to disasters. And so we're not just talking about individuals with individuals. We're talking about the family units and everyone helping each other in disaster situations. And there are physical barriers in regard to how when there is a disaster, how people move to safe areas, and also information barriers, and this is a key to some of the next slides I'll be talking about. There might be information provided on the radio, but a person who is deaf can't hear it. And so there needs to be particular pathways to provide that information across the community.

We also have cultural and social attitudes in regard to People with Disabilities, and sometimes being hidden away in villages and communities, and being forgotten about when it comes to disaster planning, and therefore there hasn't been that inclusion of planning with disability organizations with governments and so forth. So it is a regional issue of concern. We all are faced with disasters, and we see more and more disasters as the years go by.

The first time disability was included was in the fifth administration conference in 2012. That's not very long ago and it was found there and there were resolutions there that there was need for increased data, data about how People with Disabilities function in a disaster, and how to best mitigate it. Need for an end-to-end early warning system that is inclusive of foam with disabilities and more support for participation by disability organizations in disability management planning.

Now, the Pacific disability forum is a regional disability advocacy body, and that's based in Fiji. It does a huge amount of work in a lot of different areas to try and advocate for people with disability in a range of different ways and one of them is for disability organizations in various specific countries to work on disaster risk reduction and disaster risk management. It's also engaging with governments on inclusion of people with disability and disaster risk management.

Early warning systems, vital, vital for us all. Information is obviously part of it, and using standard systems make total sense. One system is the Common Alerting Protocol called CAP, which was developed in the U.S. It's an XML-based system for exchanging public warnings between alerting technologies. So you might have a lot of different ways of presenting the technologies and CAP can provide the bridge there. It has been developed as an ITU recommendation X1303.

And content can be delivered in many different formats. Audio, video takes, different combinations and can be delivered, text messages, through radio, TV and sirens as appropriate, and that can be adjusted to various GPS locations. So it can incorporate multi-modal accessibility features, so for example, if non-to be -- registered deaf people in a certain area, there can be provision for sign language if a particular country used a particular sign language. Most importantly, as we heard, it can be delivered in a lot of different languages, and CAP has been adopted in the U.S., Canada and Australia and there's been trials down in Sri Lanka.

Therefore the information about CAP in Australia, and specifically on that page you'll find we have information about CAP that it mentions how it can be used to deliver early warning systems for people with disability. Now a consideration for the Pacific, it's very early days, and to be able to do this, there needs to be an involvement of Pacific organizations. Obviously Pacific disability forum. There's a number of key Pacific-wide organizations regarding technology, geology and so forth that can be involved, and there is an organization called SOPAC that has done a lot of work with disaster planning and would be of interest to them. So to get to this stage it will take a while. There's research needed. The inclusion of all parts of the community in planning, analysis of appropriateness in various countries, and possible adaptations to meet the needs in different small island Pacific nations. And then developing policy in different countries. So there's a lot of work to be done. This is -- this is a possibility for future planning. So I thank you very much.

(Applause).

>> DAN McGARRY: I'm a little taller than you. My name is Dan McGarry. I'm the chief technologist at the Pacific Institute of Public Policy. I should say just a word or two about PiPP. We're an independent think tank that focuses on policy development processes, so we don't advocate for particular policy outcomes. What we do want to do is to make sure that the policies themselves are enacted and brought about in such a way that, you know, we have a very healthy process, one which people can -- can support and participate in. And that is going to be -- that is going to be sort of the underlying theme in the brief talk I'm going to make today.

The issue that we face in the Pacific, as Maureen and Anonga have made abundantly clear, is that we're under-resourced, we live in very, very dangerous climate at some times of the year. On top of that in significant parts of the Pacific we have a lot of volcanic activity, the risk tsunamis, environmental circumstances, and we've got very, very few people to actually get work done. So if you can imagine the worst possible environment for deploying information and communications technology, well, welcome to our world.

That said, we have had quite a few really interesting, and I think exemplary successes in the Pacific Islands. The Cooks have done some really interesting things. They're actually on the leading edge of a few technologies. As a among a mentioned they've got O3B coming in. O3B is what they call a middle earth orbit satellite technology. It's been touted as an important breakthrough for developing countries especially, and it -- I find it quite interesting, actually, that the Cook Islands from one of the very -- I think they were the first nation in the world to sign on to it.

Just recently we got -- just yesterday, actually, the announcement came out that the Federated States of Micronesian, Palau were going to be involved in it. Samoa is showing interest and there are rumors about various other national and regional entities becoming involved in it. We've got a lot of things happening, and I think it's useful for everybody in spite of our very widely differing circumstances, I think there are some common lessons that we can draw from these experiences. What I'm going to talk about today is just a distillation of how -- you know, the small victories that we've won so far, how these actually came about, and the theme, as you can see, is we should think about information and communications technology as landscape rather than architecture. In other words, we're not building a house for all of us to live in. We're laying the ground so that people can come and live and build their own houses.

So basically the premise that I'd like to work from today is that technology -- as a few people mentioned yesterday, one of the issues that we have is that technology underlies most of the work that we want to do these days, and policy development and policy implementation, in community level work and social development, all of these -- all of our efforts are -- have a technological component now, when we communicate, almost by definition, these days, we are using information and communications technologies.

So it's not an end in itself. It's one of the tools that we appropriate in order to achieve the various ends that we want to achieve. So as technologists, as professionals working in ICT, we need to think a lot more like civil engineers than we do, you know, to think like architects. I know that there's sort of -- we can niggle over the details of that, but I think fundamentally that the general statement is true.

Architects tend to fit things to within an environment. You know, you say build me a house and they'll go and look and they'll see the hillside and they'll, you know, see the drainage and this and that, and whether there's a view and what sort of shape it's in, and then they'll put a house in there that more or less fits. We are of necessity constrained by our environment, but that's not to say that we can't alter the circumstances, alter the fundamental elements to some degree at least in order to make it easier for others to build according to their own individual needs.

So if I had to take the ten years that I've spent in the Pacific and try and boil it down just as far as it goes, I would say that the process of getting a really healthy environment in which to work, in which to develop our policies and implement them, consists basically of four words, and we'll read them from the bottom up, actually. So that awareness is where we start. Remember, we're working as engineers, so the very first thing we need to do is to lay the foundations for all the work that we'll succeed in. We start with awareness. We move to an understanding of the circumstances that we face. At that point we begin to engage in some detail. We educate ourselves about the particular details of the problems and the capabilities that we have, and then we leverage that, we leverage our own capability into commitment, that is, the -- not just the desire to do things, but the will to actually complete the work that -- that we've undertaken.

So if we start at the very bottom level, at the awareness level, one of the luxuries that we have in the Pacific Islands is that we're a very small community. For my part, I live in Vanuatu. I've lived there for ten years now, and we have a population in total of about 250,000 people. So it's roughly the population of a small city, and the nice part about it is that we are kind of a Goldilocks country. You know, the fairytale where you've got, you know, the porridge that's too cold, the porridge that's too hot and the porridge that's just right. Well, in many ways we have just the right number of people, because we can all know one another, work with one another with a high degree of familiarity, but there are enough of us that we can actually get things done as well, which is a constraint, actually, that the Cook Islands and a great many of the Pacific Islands nations face, so Vanuatu is quite privileged in that way.

It means that generating network effects is a distinct possibility, provided that a few individuals are willing to work together to sort of spread the word, spread the message, as it were. And the first part of that is to get people -- to help develop a vision of where we're going to be in five years' time, and that means, really, working within what are typically very conservative cultures to start to develop a sense of what we could be, and it's -- it's a difficult task because you need to be able to embrace, you know, traditions, beliefs, points of view that have existed for thousands and thousands of years and at the same time build a vision that's looking forward, you know, that is not against change, that is willing to -- to adapt and to mold itself to new circumstances. It doesn't work unless you get a significant and widespread agreement about what that vision is.

So the -- the way to get this is to begin to make people think in explicit terms about many of the assumptions that they've made over a lot of -- a long period of time. For my part, this involves sitting down quite often with village elders, with chiefs, with very influential people who know exactly how things get done, because they've been doing it for several generations. You know, they've got very clear ideas about what they want to do. And so building that shared understanding, sorry, that's a bit of development speak that makes me shudder, but the plain fact is that it's a valid and important thing that -- we can all sit around and nod our heads, you know, when a few particular words are spoken.

You know, we all want better education for our children. Nobody is going to disagree with that. What we actually mean by that term is the crux of the matter, and it's making sure that people actually understand, without the need for too much translation, when we use particular terms. They need to understand in some detail what we're actually talking about. And especially around the edges. This is in many cases, but especially in policy development, if you don't push that understanding outward right to the very edges, then what you'll have is -- you know, where people are largely in agreement about most of the issues, and then you get stuck on the last -- you know, on the last little details that everybody was perfectly happy to sort of gloss over in pursuit of consensus. And you find yourself getting stuck further down the track.

So the emphasis needs to be on a great deal of dialogue, just talking together, and that means in Vanuatu we drink a lot of kava. It's a traditional drink that's mildly intoxicating, and almost -- I jokingly refer to it -- my local kava bar as my second office, because most of the preliminary conversations Baptist church we walk into the meetings and the -- before we walk into the meetings and conferences and workshops, they happen after office hours, the discussions that we have are quite loose, quite relaxed so that there are no stakes involved. We can disagree about things without coming into conflict. We can slowly begin to adapt our mutual vocabulary, our experiences, our understanding, until we do reach a point where we've got good detail, if you will. In detail, we need specific understanding of what the implications are of the particular choices that we're making, and this applies, I have to say, more, in fact, to the so-called experts than it does to others.

The great failing, in my experience, of development is people who believe they know what the answer is, and I include myself in that number. I could provide you with a very, very long list of foolish assumptions that I've made over the years, and I'm just happy that I've been able to correct one or two of them.

Now, education comes from understanding. It is a somewhat more formalized process, but when I say the word "education," I want to use it in the broadest context possible. I'm not talking about technical training per se. I'm not talk about advanced degrees or certifications in particular technologies, disciplines, what have you. So part of the education process is actually spreading learning. So when I say school, I mean that when a body of fish -- I don't know if you've seen all those lovely National Geographic videos where you see an entire school of fish just change direction, all simultaneously to one another. It took people a great deal of time to understand the process in there, but what was happening is there are certain -- certain individuals within the larger group who when they change direction cause a sort of a knock-on effect that comes quickly and it's almost instantaneously, in fact, that leads everybody else to change.

These are not necessarily their leaders. In fact, somebody has called it the bellwether, which refers to a herd of sheep. The leader, the most influential member of the herd is usually not the big ram that's out front, the big male. It's one of the others within the flock. They're close enough to the front to be able to move the leaders but not so close as to, you know, be right up front, say follow me. This is a common phenomenon in everything we do that requires widespread cooperation.

So the point of emphasis, you know, the point where we need to put the pressure on is typically not on the leader, certainly not at the initial phase, and, in fact, what tends to happen is that, you know, the alpha males, if you'll forgive me, it's very commonly the case in the Pacific Islands, by the way, it's a very sort of patriarchal setup, for the most part. That's not universally true. They tend to lead quite carefully by always looking over their shoulders and making sure that they're in front of the group as it moves, rather than necessarily pulling everybody in a particular direction. And that means that we need to have, again, you know, a lot of detailed understanding at the next level down, at the next couple of levels down, and a lot of that is just a real -- a very subtle and informal sense of where we are at any particular moment in time.

The net result, then, is that when the leaders come to sit down together at a meeting, when they come to define the policy, they've been informed from a fairly broad base that, you know, these assumptions are fairly safe, that these goals are commendable and widely supported, and they feel -- they have a degree of comfort that allows them to sort of move in a particular direction, and every canny politician will be carefully attuned to these currents. So what we need to do is we need to make sure that we fit in at that level.

Now, when that -- that means, of course -- you know, it's hard in a few minutes or less to express the amount of work that's involved and the amount of commitment that's involved. There's a children's story that I knew when I grew up about a little red hen who said to everybody, "Who wants to help me grind the grain?" And everybody said, I'm sorry, I don't have enough time. Love to help you. Talk to me later.

And she said, okay, who wants to help me, you know, mix the flour into dough? And everybody said, oh, I'd love to but I can't help you out.

And then she said, who wants to help me bake the bread? And everybody once again is, sorry, not this time.

And when she said, okay, the bread is ready. Who wants to help me eat it? And of course everybody was lined up at that point.

We need to be the little red hens who don't rely on others. We need to commit ourselves to action and to dialogue and to perseverance and a number of other things without necessarily waiting for others. Now, the corollary to this, the sort of follow-on to this is if we have enough little red hens, there will be somebody there to help grind the flour, to mix the dough and to bake the bread and to enjoy it with us at the end.

We are lucky, as I say, that in the Pacific Islands we tend to work in small communities, but I think that there's a lesson that can be drawn, especially when we talk about, as someone did yesterday, multi-equal stakeholder-ism. The issue is when you -- you know, when you sit down with a government leader, their first response is don't tell me what to do. I'm going to tell you what to do, because I've got the means. I've got the power. I've got the ability to apply that power, so what have you got to bring to the table? If you don't have some combination of money, means and will, then in real politic terms you are not an equal partner in the process. And this is -- this is a conundrum that we face when we work on policy development in a multi-stakeholder model, because we want to say that everybody is co-equal, that there are no privileged players in a particular context. But in practical terms, in pragmatic terms, that's not true until we appropriate some of these things. Now, that means typically we need to find allies, allies with influence, with means and with the will to actually take things on and deliver on them.

The -- this kind of commitment can happen, and in my experience it does happen, but if it's going to be -- to happen in a multi-stakeholder way, then it needs to happen at all levels. We need to bring the votes to bear for those of us who -- you know, who have very healthy and functioning democracies, and that is the majority of us. The will of the people actually is an extremely valuable and important tool. We need to have business in line, that's small and medium enterprises just as much as it is larger corporate interests, and the will, which inevitably manifests itself in political terms, has a great many other facets that can be brought to bear. The willingness of the bureaucracy to go along with a particular -- and to support a particular measure is equally important to having the leaders all signed on to something.

I've seen a great many agreements, declarations, protocols, treaties even signed with no actual intention of following through in the detailed and deep implementation of particular things. In fact, one of the great problems with the 1988 ITRs is that everybody said yeah, these are great. We'll put them in the drawer and we'll look at them someday. And it's perversely one of the great hopes that I have coming out of WCIT, is that the ITRs will be treated in pretty much the same way. But for us working in the Internet, we don't have that luxury. We need everybody to be working together and to be mutually committed to common goals, because without that we don't have an Internet. The way that the protocols are built, right from the very basic levels to the highest level, we require cooperation and commitment, and building that commitment, you know, I've given you a very brief sort of broad-brush introduction to that. I think the IGF is most useful as a way of beginning a dialogue rather than ending it.

So I hope that these few minutes -- you know, in these few minutes I've been able to at least begin to stir a few thoughts about how we can go about actually achieving all the important principles that we espouse here. So I'll leave it at that and I hope to be able to chat with as many of you as you like after the fact. Thanks very much.

(Applause)

>> Hi. We'll finish off, Anonga will do a very brief presentation on O3B, which we'll introduce, and so while he's getting that up and running, I just wanted to make a point of saying, thank you to the Internet Society for enabling the four of us to be here today. We -- it was a bit of a struggle, but I'm really proud of my team here and very pleased that we were able to come and share this time with you. Anonga.

>> ANONGA TISAM: Okay. I'll quickly talk about O3B, so I reach a fiber speed, I'll just do the video. It will be a really brief video. So most of the Pacific island countries including the Cook Islands are connected by one of these. This is a geostationary satellite and it's just fixed on to a satellite, and that's how we get our Internet connection to the Cook Islands. As mentioned by others it's quite slow and expensive. This year is the launch of the O3B satellites so they're orbiting satellites, there's about four of them currently, in orbit right now and then another four to be launched by September, I think, and just because the satellites are closest to the earth we're able to get faster speed. So I think we're going from something like 20 megs to about 100 megs coming down from the sky, and -- telethon Cook Islands is the first customer.

This is a time lapse of -- on a building, the base stations for the satellite system, and these actually track the movement of the satellites and hand over the -- as the satellites move across the sky, and I'll show you a quick animation. You can see they're working throughout the night, and then shortly the satellites will begin tracking. So there's the first one tracking the satellites across the sky. There's only four of them up at the moment, and this is -- there's doing testing with their equipment.

There's also for -- the technologies actually performing according to specifications, so this is basically how it works. You have eight orbiting satellites. First one here is tracking it through, and that's connecting it to the Internet, and then the -- the next one connects to the next one, and then as it goes up, there's a handover here. This other one comes back here and picks up the next one and it just goes and they keep interchanging. So those are the two satellites that you saw in the Cook Islands. Should be another animation coming up.

So that should actually revolutionize the way that we're able to communicate with the rest of the world. The red beam here is to Hawaii, and these white beams here are to the customers in the Pacific, the Cook Islands here. So the signals get bounced to Hawaii, and then it jumps on to the Southern Cross Cable and connects up with the rest of the world, and there's a little animation of all the satellites in orbit doing their handovers and stuff. So yeah, a couple of years ago this was a pipe dream and everyone thought it was impossible, but now it's coming, in November, I think it is.

And there's another crazy project called Google Loon. You can go on the Internet, but here I took some photos of the equipment that they're using inside the telecom sensor. These guys here are actually putting in the 3G network for mobiles that's coming in and they're hopefully launched by February. Trying to marry it up with the fast Internet connection speeds that are coming down from O3B. Jules was the one that put us in the -- he's the CEO of telecom and signed the deal before anything was up in the air, so that's how we became the first in the world to jump on O3B. And as was mentioned earlier, Palau and FSM are jumping on.

So just some quick status for the stationary satellites. The two satellites are moving. We're expecting 100-megabyte speed versus the 20 that we currently get. Our rain fade is an issue, but there was heavy rain and the technicians just did it and everything seems to be working, so it doesn't affect the connection too much.

The latency in terms of the satellite connection is 150 milliseconds versus 6 to 800 we're getting from the geostationary satellites. It's only going to be servicing the -- it will only cover the southern group but what will happen is the geostationary satellites will be shifted up to cover the northern group and that should give them more service. I was going to say something about that. I can't remember now.

So that's the O3B satellite and it's an option definitely for the Pacific, and hopefully it will change the way we connect and communicate with the rest of the world. Thank you.

>> Thank you.

>> ANONGA TISAM: Thanks.

>> MAUREEN HILYARD: We're finished. We did start a little bit late. But if anyone has -- are there any questions they'd like to ask? Oh. Congratulations to the Pacific Islands of the -- for getting the O3B. So the coverage for O3B once all of the satellite -- would that cover the entire Pacific in the region?

>> ANONGA TISAM: You're going to have to ask the O3B guys, but I think it covers a middle section and I can't remember what the latitudes are, but it only covers the middle part of the islands. I'm not too sure if it covers all of the Pacific, but we can find that information out and I can let you know what areas it covers.

>> MAUREEN HILYARD: That would be good to know, so, you know, in terms of Internet penetration.

>> ANONGA TISAM: I just wanted to add that it's pretty much the tropical regions, so we get decent coverage. If -- I mean, we have FSM in Palau who are pretty much at the northern edge of the South Pacific, as they often call it, so we're -- we've got the vast majority of Pacific island nations covered.

>> MAUREEN HILYARD: That's good news. And the second thing is with this satellite so more people can actually use the Internet, so would the access cost be cheaper or more expensive? Given that satellite tends to be expensive.

>> ANONGA TISAM: I think in the Cook Islands the costs have come down significantly, but again population is so small it's not going to make much of a difference. I don't know. (laughter).

>> MAUREEN HILYARD: I know that cost -- I mean, talking to Jules, he said he has put down the cost of it, but it's still expensive. For the local it's still expensive and it will probably be --

>> DANNY McGARRY: If I can add a little bit on to that, the costs in the Pacific Islands generally are prohibitive. They're orders of magnitude greater than what we would pay here. Vanuatu has a total national bandwidth usage that's smaller than a typical residential Internet package here in Seoul. Even -- no matter what investment is made, the costs are still going to be just ridiculously high. The estimate, I think, for O3B was that you get a significant reduction over the cost from geostationary satellite services. It's quite good. So now we're down to maybe 20 or 30 times the cost of what -- what we would pay, you know, in a typical urban residential Internet package. Vanuatu has got a fiberoptic cable coming later on this year, the ship with all the fibers actually just left France a day or two ago, and we're bringing -- it looks like we'll bring the cost of an uncontended megabit of bandwidth down from about $2,000 per megabit wholesale using geostationary to about $1,300, which is not much, relief at all. The biggest difference is we have of course normal latency, better quality and access to much, much more volume than we had before. So if we can find a way to actually start using more bandwidth, it will become cheaper per megabyte, albeit still hideously expensive by just about any measure.

>> KEITH DAVIDSON: Thank you. My name is Keith Davidson. What would be really interesting, I think, and something that the Pacific island chapter of ISOC might want to lead, would be to do a pricing comparison across the Pacific Islands of the cost -- the cost of an average home connection, and comparing that to the GDP per capita on island. I think if -- if the rest of the world could see that statistic it would be -- you know, it would be truly alarming that that is the amount of your -- in your wage packet that you would be spending on -- just purely to get Internet. The other thing that would be really interesting would be to know the reach on each island of where the Internet is and how much unserved population there is.

>> DANNY McGARRY: That's abundantly true. Unfortunately -- we actually talked this through on the PICISOC some time ago and what we found is it's a bit of an apples and oranges comparison. It's very difficult -- what we were looking at, is there sort of a common denominator that we can use to show the relative cost. One thing that we looked at was, you know, how many cans of Coke would it cost to do it, you know, trying to find something that's moderately universal. We couldn't find one, for one thing.

The other thing is that a megabit is not always a megabit. In some countries we have absolutely insane contention levels, you know, 30 to 1, 40 to 1, 50 to 1 contention for a single megabit of data, which is absurd. You know, it's effectively no service at all, whereas in other countries we have quite competitive things, albeit hugely expensive. It's true that the message has not been received at the highest levels. The institutional lenders, various other parties, while -- you know, they have all the desire in the world to help, and, you know, it's genuine goodwill, they just don't understand that standard Telco models, for example, just cannot be usefully applied in a development context. So they start to say, well, we'll implement a universal access policy, so we'll use the revenues that we get in the profit-making areas to subsidize, you know, the unprofitable areas, and that's not going to do it either.

And then you have the additional complication that our last mile, as it were, you know, the connection to the residential premise is -- it bears no relation whatsoever to just about anywhere else in the world.

Now, I know I'm preaching to the choir here, Keith, but I think it is useful that we underline this. One of the issues that we're going to have to come to terms with is that -- and it's actually sort of implicit in the -- in the foundation-building metaphor that I was using in my little talk. We cannot see Internet infrastructure as a profit-making service. It's not practically possible. We have to see it as the platform on which economic activity, along with a great many other things, will take place, and to this day that case has not adequately been made. We've been shouting about it a lot, but it's really hard to walk into a meeting, especially when Telco is present, and tell them, you know, look, we want to commoditize your product. We want to just make it a baseline utility. That's the last thing in the world anybody wants to hear, especially if they're making major investments in infrastructure. So it's -- it's a tough slog, but it's one that we are inevitably going to have to face up to.

>> To follow up, I quite often have conversations with various significant global corporates throughout the Pacific, and while they're interested in hearing what the issues are, what would really turn them to understanding and acting on things would be to have some firmer statistics. So even though you're talking about nominal rates of megs and so on, I think having that comparison is really quite an important thing, so that there is some basic evidence of the issue rather than an emotional discussion about it. So -- and it would help me and probably help others to -- if we had the real statistics, so maybe something that USP or somebody could take on the challenge.

>> DANNY McGARRY: I wish they would. If you check the Vanuatu policy, it's in late format, it should be submitted to the council of ministers within a few weeks, I think, they have -- they did some preliminary work on pricing for explicitly those reasons, so I'm sure they'd be willing to share the data. Now, that would apply to Vanuatu only. But I think it's exemplary. I think it's a useful example of the kind of challenges that we make, because we are kind of a middling population, you know, smaller Papua, New Guinea and larger than Samoa and the Cooks and other nations. Sue Ella Hanson has some stuff. It's working from available public domain information, which is, you know, not always up-to-date and not always reliable. Gathering statistics in the Pacific is a horrendously difficult task at the best of times, but I think there are a few things there, and if you want we can -- we can sit down afterwards and, you know, just see what we can compile and see if there's enough that would be -- that, you know, we can usefully make the argument.

>> Thank you. Winston from New Zealand. Just before I ask my question, or make my comment, I want to say I totally support what Keith Davidson said about gathering evidence and statistics. That's absolutely essential to get anywhere in a political environment, and especially -- even when you're talking about something that ought to be a natural monopoly, like running water or access to information.

But what I wanted to ask Anonga is, when people -- when the signal comes down, how do people access it and where do they access it? Do they mostly, or do you expect them mostly to access it in their own homes or through some public facility? That is a collective shared community public facility.

>> ANONGA TISAM: I think it will come down to how much it costs, but the figures from Telcom haven't been released yet in terms of what the broadband plans will be. But most people generally now wouldn't have it at home. They would access it either from home or from school, if it's younger children. In the outer islands it would have to be from communities, like the ones that Maureen has set up. Yeah, I can't give you any -- it may change when O3B comes down and if the prices are right, then we should be able to see people getting Internet access at home.

>> MAUREEN HILYARD: I think we're at the end of our time, because the next group is ready to come up, but thank you very much for your questions and for being here for us, and thank you for the contributions this morning. I very much appreciate it.

(Applause)

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