A view about SIDS: work to avoid and manage disasters on Fiji

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Interviewee: Viliame Kasanawaqa – Director, ShipWrecked Lab, Suva, Fiji

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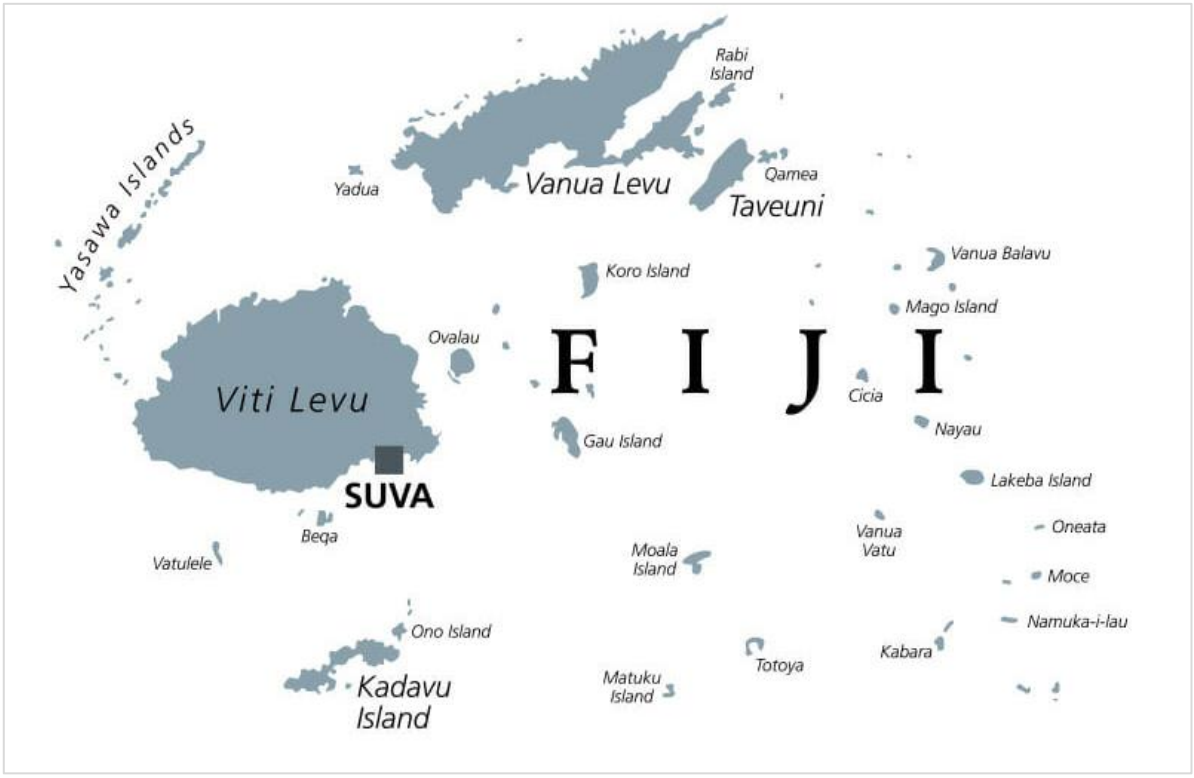


Figure 1: Republic of Fiji Island Group

Viliame,

Thank you for making the time to talk with me about the work taking place in Fiji to reduce disaster risk.

Can we begin this interview with an overview of your background and current activities, and perhaps your general views about the overall direction of resilience and disaster risk reduction for Fiji and its neighbouring Pacific islands?

As a general overview for our readers, I will start by providing a general background about Fiji using data from the UNDP Data Platform for SIDS (an excellent resource): As a nation in the South Pacific Ocean (located about 1,770km / 1,100 miles northeast of New Zealand's north island), Fiji consists of over 800 volcanic islands and islets. It is one of the most economically developed Pacific Island realms due to an abundance of forest, mineral and marine resources. With a population of approx. 890,000 people spread across its islands, two in particular make up about 85% of its land mass:

(1) Viti Levu (10,429 sq. km), which covers 57% of the total area, and Vanua Levu (5 556 sq. km). Viti Levu is the centre of politics and economy and where the capital, Suva, is located, plus Nadi, the centre of tourism, and the majority of farming land exists for sugarcane (the major crop). Over 90% of Fiji's population, rural and urban, lives close to the coast, which is therefore where most infrastructure, agricultural production, and services are located.

Viliame: *Thanks for this opportunity to discuss disaster risk for Fiji, and how it links up as part of the Pacific Small Islands Developing States. I have been working in the Pacific SIDS ("PSIDS") arena for quite some time. I am excited about sharing expertise of SIDS-produced solutions and leveraging scientifically verified traditional wisdom to build resilience in the Pacific. I have a Bachelors of Engineering from Deakin University (Australia), a Master of Science in Project Management–Built Environment from the University of Newcastle (Australia) and a Master of Arts Research Islands and Small States, Malta.*

I am the Executive Director of ShipWrecked Lab, which is a living demonstrative lab for adaptive solutions to increase resilience in PSIDS. The lab was founded in 2011 to focus on reducing persistent vulnerabilities and to strengthen island resilience. We focus on improving human well-being and social equity while reducing environmental degradation. To accomplish this, we believe that islands – Fiji and others – must take a whole-of-society approach to forge an economic, resilient, and sustainable path forward.

In my work in the Pacific for over two decades, I continue to find that the most pressing problems islands encounter are transnational in nature. Meeting these challenges requires multilateral cooperation between islands and other parties to achieve transformative action at the most affordable cost.

To build island resilience, policymakers and practitioners must recognise that to reduce persistent vulnerabilities and build resilience in the PSIDS, development and resilience must be addressed holistically, taking into account each islands' adaptive capacities.

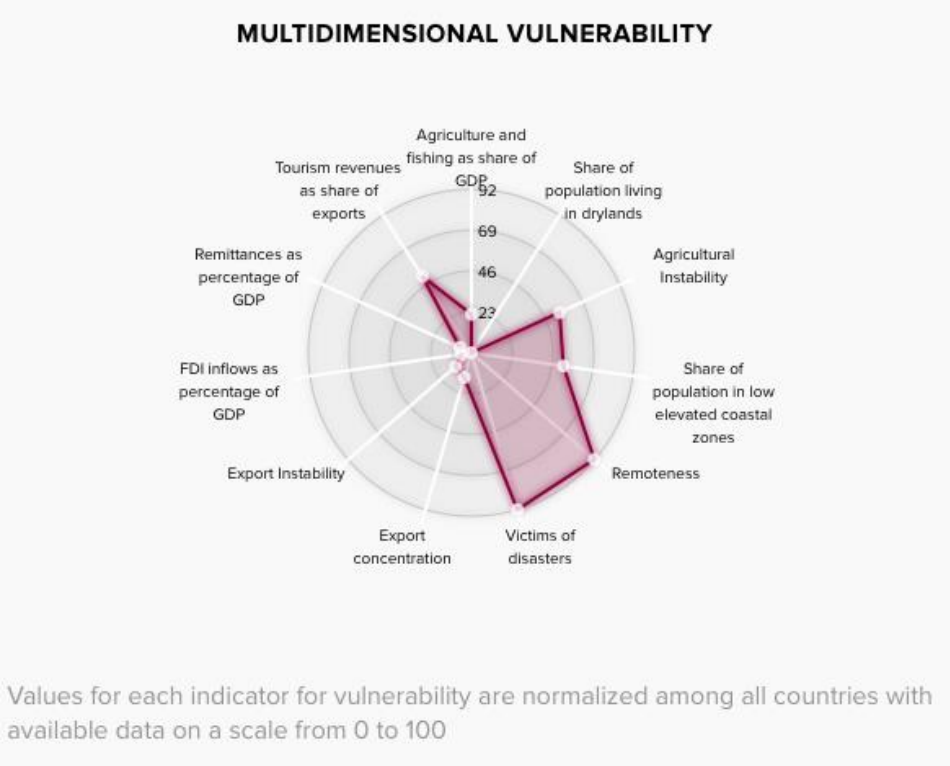
Gareth: Thank you for this overview, Viliame. I am looking forward to unpacking in this interview some of the points that you have outlined.

We know that Fiji and neighbouring Pacific islands are vulnerable to a range of natural hazards – including floods, landslides wildfires, volcanoes and earthquakes (some of the occurred events that have affected Fiji are tracked on ReliefWeb).

In our Disasters Avoided work we are looking at examples of action people have taken and are taking, at a global level through regional, national and specific local levels, to avoid disasters in the face of hazards and threats that exist.

I have found it interesting to look at some examples available online about the threats Fiji faces. I imagine that the government of Fiji has a risk register of some sort of the key risks that the nation faces (I haven't been able to see any such register published

online). The World Bank Climate Risk Country Profile for Fiji published in 2021 highlights the risk to infrastructure critical assets and degradation of natural resources. When I look at the UNDP SIDS Data Platform profile for Fiji, it shows that the set of islands that make up the nation has a particular vulnerability to disasters:



Source: UNDP SIDS Data Platform – Fiji profile

Coface produces a trade risks overview for Fiji, which shows its major export and import partners (with Singapore as a leading importer along with China, and the US and Australia being major exporters).

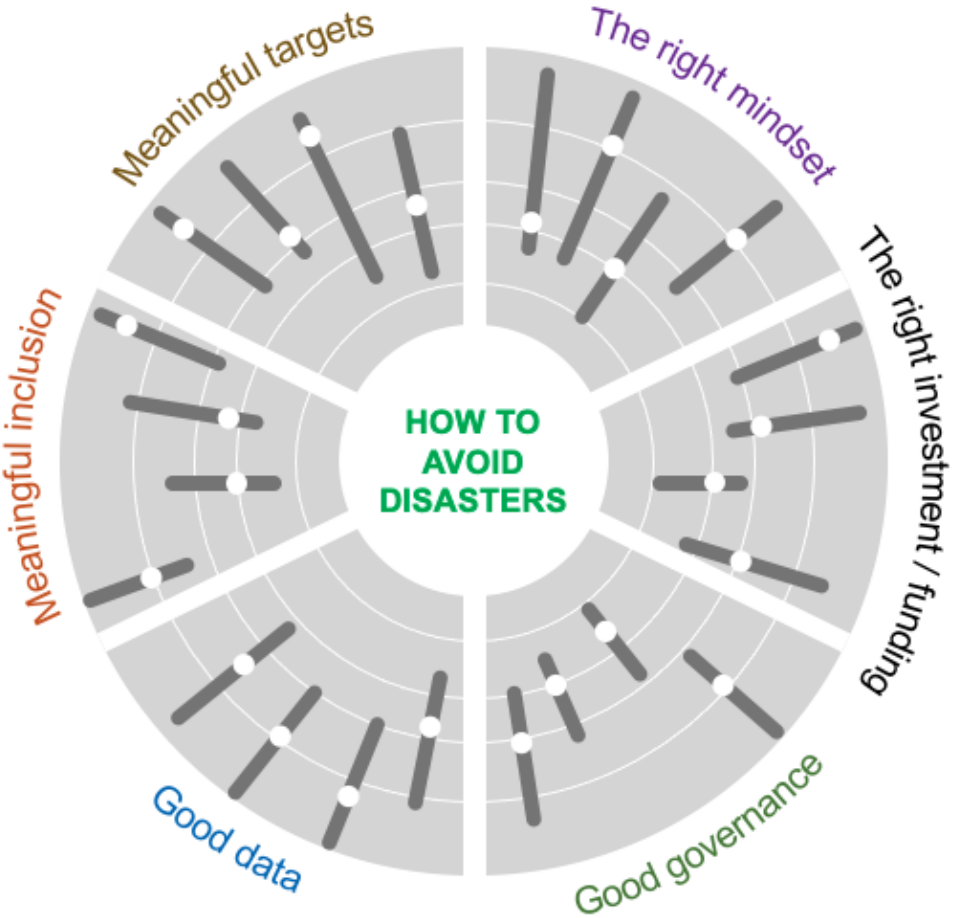
What is your view on how disaster risk is being tackled in Fiji today, and how has it evolved over the past 10-20 years? Is the challenge getting more complicated and does this support a need to cooperate closely with neighbouring islands to find solutions?

Viliame: *What has happened in recent years in Fiji is that we have come to accept our situation with natural hazards as a new norm – that we need to deal with it as part of how we live. Whilst people who live on Pacific islands have been dealing with major disruption from nature's forces for thousands of years, and there is a lot of traditional knowledge amongst the populations of these islands which we need to make sure we leverage, we have some important new aspects affecting us nowadays.*

The regional community has created a Framework for Resilient Development in the Pacific to address disaster risk and climate change, which shows us how the region is seeking to respond. It was created in an inclusive way, involving many parties. We know that we need to coordinate our actions across the Pacific in an intelligent way.

One of the things we need to ensure we maintain a focus on is to look at how efficiently, in Fiji and elsewhere, the Pacific region shares its experiences and lessons learned.

Gareth: This Pacific-level framework, as an example of governance and planning, brings me onto our Disasters Avoided model – which I would like to get your views on. Our model contains six factors, starting with having the right mindset to avoid disasters (without which the other five factors will never be truly effective). The second factor of the right investment and funding is of course key – and we stress that it needs to be in an appropriate way, and efficiently allocated. Good governance comes next, which includes examples such as the one you gave just now on the regional framework, and taking such agreements through to the local grassroots level, including the involvement of people in participatory governance through to local government and local communities. The fourth aspect is the need, and indeed the criticality, of capturing and using good data, to inform and support good governance and make the right investment decisions. This links into our fifth factor of how we involve everyone in a meaningful way (which takes time, and is worth it), all of which can be tracked with meaningful targets, our sixth factor.



The Disasters Avoided model: G Byatt, I Kelman & A Prados

When it comes to Fiji, is the mindset of people who are involved in reducing disaster risk in Fiji, and of those who live on the islands, one of accepting and living with the threat of disasters or is it one of working to avoid them?

Viliame: *I would say that our mindset is nowadays one of adaptation – we need to adapt to the challenges we face, and how future decades could evolve. Vulnerability for Fiji is multi-dimensional – we have to look at things in a joined-up manner. How we finance and pay for what we need and want to do is key, and it needs to be factored into all levels and parts of society – national budgets, local governments and communities – to have the right finance available to implement sensible measures. So, through this approach we can see there are many links between having the right mindset, securing the right investment, and going about it in the right way.*

Societal health is a key point for us to focus on, as an example of the need for joined-up thinking. A focus on health means focusing on the physical threats people face such as vector borne diseases, and mental health. When people are displaced and / or they lose their belongings due to a disaster event (and, even worse, if they have to go through it more than once), there can often be large family histories and memories associated with the place they call home which they lose, and this can be a major psychological stress for them to have to deal with. How can we help them deal with this? People need a mindset to know they may potentially have to move if a major event occurs where they live. This isn't easy, but perhaps with training and open discussions we can make it more bearable for them.

It's important that we have a mindset to leave no one behind, and that this is always in our minds in everything we do to prevent disasters and to minimise the impact of events that occur. This includes considering aspects of gender and different parts of society that need to be inclusively involved and included. Youth, children, LGBTQ, women's needs, people who have learning needs, the disabled – our policies need to be inclusive. The pathway that we need to follow needs to achieve stronger communities, better support for local solutions and sensible allocation of funding. For me, this means that we have to look at the overall social, environmental and economic aspects and see where there are connections that we need to address and take into account.

Gareth: I can see that health, both physical and mental, is very important to focus on. The three factors of social, environmental and economic aspects make me think of taking a systems approach to understanding how to tackle the multi-dimensional challenge of disaster risk and working out how to avoid disasters. Maybe the physical environment could be added to these three elements. The paper I produced for the SIDS Future Forum in March 2024 that we both attended focuses on using a systems-based approach for the cities of SIDS, which considers the ecological and environmental, physical and built environment, and social and economic aspects. I link the 17 SDGs to this form of systems thinking, because they align with this approach.

Whilst my SIDS Future Forum paper focused on urban environments, I appreciate that there are people who live in much more remote areas.

Are there different points of focus for establishing resilience and the ability to avoid disasters for Suva and other urban areas, and places in Fiji that are remote?

Viliame: *I support the approach of systems thinking. It needs to be reflected in national policy, in my view. Policy creation can benefit from systems thinking to address multiple challenges that they need to be designed to help address.*

I think the main challenges are the same in the urban environments of Fiji as they are in its remote areas. The key is for solutions to be "right fit" for specific locations. To give you a recent example, in Suva (the capital city of Fiji), a month-long period of inclement weather with a lot of rainfall in March 2024 impacted our water supply system. Ironically, whilst there was a lot of water that fell from the sky, it caused problems for the water supply to residents because silt blocked up the stormwater system and there were problems with the city's water treatment plants: for example, a landslide caused one of the lines supplying the treatment plant to be washed away. The event impacted on critical infrastructure serving people's essential needs (to make a link to the SDGs, in this case it was the provision of clean water and sanitation, SDG 6). We need to work out how to make the city of Suva resilient against natural and climate-related hazards over time.

If we consider other locations in Fiji, of places outside of Suva and still in fairly well populated locations (semi-urban / semi-rural), how people access water and food directly links to their health (SDG 3 – good health and wellbeing). When people in semi-urban / semi-rural locations experience a major storm, for example, they may be cut off from supplies, which even if it is for a relatively short time can be a problem. Energy is another important utility for us (I mentioned earlier that it is one of our biggest costs as a nation). For example, fisher people who catch fish for a living need to preserve their goods. If they lose power for long periods to keep their catches refrigerated and / or frozen, their earnings melt away.

As part of energy resilience options, we are looking at solar energy, which requires us to address a wide range of aspects with systems thinking. It's not simply a matter of installing solar panels on people's roofs and considering the job done. We need to ensure the infrastructure is right-sized, reliable, efficient and is one that local people can support and maintain it. We don't want to be in a position of having a technical problem and always needing someone from outside to be available to fix it.
In this way, and as you mentioned just now, we should consider several of the SDGs in the planning and thinking that we undertake.

Then, if we consider people who live more remotely in the outer islands, they don't have a network of pipes for tap water – they collect rainwater to have water to drink. When they experience a drought, they run into a major problem because they may run out of drinking water. How can we help them with practical resilience support? Plus, they have limited energy resources to be able to deal with shocks.

Gareth: Thanks for sharing these examples, Viliame. It's very helpful to think about an island like Fiji as having numerous layers or levels (and complexity) to it, as a system. It's not "one small island where everything is the same". Let's hope that as

policies for Fiji and other islands are developed, systems thinking helps people to design smart solutions in an appropriate way.

When we talk about the right investment / funding in our Disasters Avoided model, we describe the need to smart with funds available, and how we make sure it goes to the right areas, including directly to important local needs. Potentially, we believe that it may sometimes include allowing communities to have a say in where funding goes (for example, with appropriately governed participative budgeting). Funding needs were a key part of the discussions at the March 2024 SIDS Future Forum, of course.

Viliame: *I think this point about ensuring funds and investment is management well links to your model factor of good governance. It is crucial to have a strong governance structure in place, supported by good data (another of your model factors) that informs where investments should best be made. There is also an onus on communities having strong leaders to ensure funds are used well at a local level.*

The private sector is starting to see opportunities to invest more in various aspects of Fijian life and the industries that are important to the economy. The private sector can bring innovation, including good uses of technology. How the private sector can best support communities for climate and disaster resilience is another example of the importance of everyone having a common mindset and an integrated approach – government cannot solve all the problems and address all the needs that people have. We need various groups of people, who may have slightly different objectives, to work together.

Gareth: Are there good examples in Fiji of how this type of action by groups working together is helping communities to be resilient against disasters?

Viliame: *There are indeed some good examples. The Fiji Shelter Cluster[*] and Vanuatu using digital money in disaster response are two such cases[†]. Communications are well aligned now between the National Disaster Management Office, local communities that have evacuation centres, and the Met Office that sends out weather alerts. The coordination of good early alerts so that people can take quick action to keep themselves safe and to protect their livelihoods helps us avoid disasters. Then, post an event in the recovery phase I have seen the mobilisation of immediate needs for individuals – from food to sanitary items – which makes a big difference to their mental health (something we discussed earlier). The private sector can work with government to convert government-provided funds into practical things that people need, including in our remote communities (not only in Suva and our more populated areas).*

As an example, we now have the use of mobile technology to give people quick access to crucial funds to keep their lives going after a major event such as a cyclone occurs. I have seen it in action in Fiji and also in Vanuatu, with mobile money (i.e. to smartphones) being provided to quickly deploy available funds to people in a way that is governed efficiently and properly (per your point on good governance).

[*] Shelter Cluster Fiji - Case Study - Fiji | ReliefWeb
[†] Vanuatu pioneers digital cash as disaster relief | UN Connecting Business initiative (CBi)

The private sector provides the innovation of the mobile payments platform, government provides the funds, and it is combined to help local people, typically with a village headperson, as a representative of the government in charge of organising the distribution. It is at the local level that we know exactly what people need, and in a fast way; it's not guesswork. Civil society and civil society organisations (CSOs) support these efforts.

Gareth: The early warning example you have given, Viliame, reminds me of how Bangladesh handles its resilience against flooding and cyclones nowadays. Their evacuation centres often double up as facilities such as schools in regular times, and they are converted to these shelters when they need to be. Plus, people's willingness to take shelter in these shelters crucially requires trust that they will be given resources to help them address their immediate needs afterwards, and that their livelihoods can be protected. Maintaining resilience in education is of course an important part of this.

On the point of private sector assistance, I have talked with insurers about the potential for increased use of parametric insurance, as a mechanism to release funds to impacted people early on in the onset of events.

Viliame: *Yes. In Fiji we have insurance cover for farmers that is based on parametric insurance. The details include insurance cover to rebuild their livelihoods. This can include the use of payments by mobile phones at local hardware shops for materials they need. the government allows the rebuilding funds to be available. This ensures the funds quickly go to what is needed, directly. We need good governance in place to ensure it is managed well – governance that needs to be smart and efficient.*

As another example of private sector support, consider learnings from Cyclone Winston which occurred in February 2016 (the first category 5 cyclone to strike Fiji). After this event, one of the many activities that occurred was by the Association of Engineers came together and reviewed engineering designs for communities to build back in a more resilient way.

Gareth: I have talked with various people who are involved in providing engineering support to places impacted by events such as major cyclones. For example, I have interviewed the Chief Engineer at Engineers Without Borders Australia about solutions and assistance they provide to islands, and the team at the NGO, RedR UK, about their work in providing training and support. Indeed, the team at RedR have mentioned to me that the Engineering in Emergencies Handbook they have heled to create is being updated to a third edition, to be published in due course. Some of the world's major engineering firms provide support for disaster risk reduction and response, also.

Viliame: *Engineering support can be extremely valuable, including for immediate and quick advice and assessments of engineering work needs.*

If someone is building a new structure or repairing an existing one before or after a major storm, they can hold an online video call with an engineer, who could be anywhere in the world, to discuss the method being used and to obtain advice and recommendations about it. I think this is a good example of "smart training" that can be provided, which is great.

Gareth: Thanks for this context, Viliame. It's good to have in-person liaison when it makes sense to do so, whilst also appreciating that short, direct video calls and web meetings with experts who can be located anywhere can add a lot of value as well. This point has got me thinking also about how engineers can help to design properties and facilities that are appropriate for everyone (and to ensure that we leave no one behind, to your earlier point). On the point about mobile connectivity and Internet connectivity, we know that it is extremely useful and that there is a need for sensible redundancy to be in place (for example, the volcano that erupted in Tonga caused an Internet rupture for several days). It's important to take a systems view to this, isn't it.

Viliame: *This is another example of how the private sector can help to provide support. They can help an island to adapt to a changing climate and to the disaster hazards that it faces.*

Gareth: Continuing on the theme of private sector support, I have liaised with some of the team that are part of the UNDRR-sponsored ARISE network about the role businesses can play, all around the world (for islands and all other nations) to provide purposeful resilience, including through things such as disaster scorecards. We have also talked about their business continuity planning involving how they can support communities, and how communities can also have their version of these types of plans, through community continuity plans. Are you seeing this type of thing in Fiji?

Viliame: *Yes, this is an interesting point. In Fiji, as well as the formal government structure that exists there is the traditional government of village elders and sub-clans, clans and larger groups. A chief heads up a traditional structure, which has been in place for some time. The British saw how this worked and formalised it within the government structure that was set up for Fiji, and it has stayed in place now that Fiji is a sovereign nation state. This structure has been efficient and effective for many years, and it links to your point about community continuity planning (and also the factor in the Disasters Avoided model on good governance).*

On the subject of the disaster risk reduction work in Bangladesh, which you mentioned earlier, Fiji has looked at what this country has done as a learning exercise, including how village communities have considered their design and what services need to exist, and how they are served. This is a form of community resilience planning.

Gareth: It's great to hear about the learnings Fiji can take from Bangladesh. When it comes to engineering, I know that in certain parts of Bangladesh engineers have designed and built "teardrop type plinth villages" to be resilient against fast-flowing water flows from heavy rainfall, which are low-cost to build. These designs may not be appropriate to other places, but the concept is there to be learned from.

Viliame: *Yes, I think this aligns to the point we talked about earlier on Nature-based Solutions. I have been part of a Steering Committee to look at Nature-based Solutions. We know that we don't always need "hard" solutions to protect ourselves from disasters. It doesn't always need to be concrete. One solution we have looked at, which I think is similar to many other parts of the world, is the use of mangrove plantations for coastal resilience and slope protection.*

In the case of Bangladesh, we appreciate and recognise that they have major challenges. The challenges we face in Fiji, Kiribati, the Marshall Islands, Vanuatu and elsewhere in the Pacific and beyond have many similarities with countries like Bangladesh. Solutions should be shared, and our local context taken into account. We shouldn't be starting from scratch. We talked about bamboo construction earlier. We have been learning from places like the Philippines and Thailand about how they are using this material.

Gareth: I imagine that, when looking at Nature-based Solutions, we need to appreciate that local specifics such as varieties and species of plants and natural resources need to be fully understood.

Viliame: *For sure. For example, in Indonesia there are bamboo species that are for good construction, better than the native ones we have in Fiji. So, we need to assess whether we can use them whilst not harming our natural ecosystem here.*

Gareth: If I can link the points about Nature-based Solutions and engineering together, I understand that you are doing some work on building and construction solution options in Fiji at the moment?

Viliame: *Yes. I am looking at building codes and reviewing options for four countries in the Pacific, including Fiji, for resilient building materials, including how bamboo can be used in construction for climate-resilient housing.*

Gareth: For the building codes and construction materials that you are reviewing, what materials are you reviewing in addition to bamboo? Does it help to look at how other islands and other parts of the world are using various types of materials? I know that different parts of Asia make good use of bamboo as a natural material that can provide good resilience to certain natural hazards: I know there are some good examples of its use in the Philippines and Viet Nam. Bamboo strikes me as an example of a Nature-based Solution for construction.

Viliame: *The more we can use local and sustainable materials, the better. If you consider cement, for example, the majority of it is imported in Fiji.*

The availability of timber is something we are looking at. Whether there can be substitutes to plantations is key to avoid having to harvest native forests, which we want to avoid. We currently have pine plantations here, for example.

We are indeed looking at examples of how materials are being applied elsewhere – including bamboo. For example, I am working with partners in Indonesia and the Philippines. In the Philippines there are some interesting applications of bamboo for a range of purposes, including for housing frames (the material has good tensile strength that can make it suitable as reinforcement for construction as well as for structural walls). Bamboo, of which there are about 20 species in Fiji, is quite widely available here and in neighbouring islands, and it is low-cost for us, which is key. We are starting to work with a community area to look at specific applications and solutions, including transport amenities such as bus shelters as well as its suitability for resilient forms of housing.

Gareth: You mention cement – it has a very large carbon footprint, as the traditional Portland cement product. I wrote about cement and concrete a few years ago as it happens, and I have spoken with some people, such as Cambridge Electric Cement, who are doing some interesting research into greener forms of cement.

Viliame: *One of the things we are looking at is low-carbon cement, including concrete that has a higher proportion of granulated blast furnace slag for "blue concrete" – it is an interesting area for us to look at.*

A major cost for us on the island is the cost of energy. It is much better and more cost-effective for us to use materials that are both sustainable and local, and of course ones that can provide resilience to major storms, to help us avoid disasters occurring if we can.

Gareth: We have covered a lot of very interesting and topical points relating to Fiji, the PSIDS and other islands, Viliame. Is there anything else that you would like to mention about the efforts and activities in Fiji, the Pacific islands and maybe elsewhere?

Viliame: *I would say that the SIDS4 conference will be key. It is a key point in time to agree resources to be made available across all SIDS. It will be a challenge to agree on everything.*

Monitoring and reporting of what is agreed should be a key focus moving forwards. In the past, this hasn't been done very well. What kind of data we need, at different levels (community to regional and global) needs to be agreed.

How we connect the finances available to the pipeline of activities is key. Island economies are small, we know that. we need to think about how we can bundle together our actions. I prefer to think of a portfolio and programmes of activities, not just discreet projects. When one island has a particular need that can be linked with another island's needs, we should see if we can combine forces to make things happen in a better way than if we tried to do it by ourselves.

Thank you very much for your time, Viliame.