

Shared resilience and Māori communities

Infrastructure for a better future

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Please note: the transcript has been edited to make reading as easy as possible.

Introduction: Welcome to Infrastructure for a better future, a series where we have honest conversations about the infrastructure challenges we are facing and how we can build a better Aotearoa. In each episode we talk to experts from here and overseas about what works when it comes to addressing these issues.

Clare Sinnott: Nau mai haere mai.

Ko Ngāti Tūwharetoa tōku iwi

Ko Clare tōku ingoa

He kairangahau ahau i Te Waihanga.

My name is Clare. I whakapapa to Ngāti Tūwharetoa and I'm a researcher here at Te Waihanga, the New Zealand Infrastructure Commission. With me today is Dr. Matthew Hughes from the Department of Civil and Natural Resources Engineering at the University of Canterbury. Tēnā koe Matthew.

Matthew Hughes: Tēnā koe.

Ko tēnei taku whakapapa

Ko Te Ramaroa te māunga

Ko Whirinaki te awa

Ko Pā te Aroha te marae

Ko Hikutū te hapū, Ko Ngāpuhi te iwi

Me nō Wēra, nō Kōtirana, nō Ingarangi aku tīpuna

Nō Ōtautahi ahau

He kaimahi au i Te Whare Wānanga o Waitaha

Ko Matthew Hughes taku ingoa

No reira, tēnā koe Clare

Greetings

This is my whakapapa

Ramaroa is my mountain

Whirinaki is my river

Pā te Aroha is my marae

Hikutū is my subtribe, Ngāpuhi is my tribe

And my ancestors are from Wales, Scotland and England

I am from Ōtautahi/Christchurch

I work at the University of Canterbury

My name is Matthew Hughes

Therefore, greetings Clare

Thank you for having me.

Clare Sinnott: We're in the process of undertaking some work, we're calling the Māori engagement in infrastructure state of play. We're looking at both Māori engagement on infrastructure proposals initiated by others, and wider involvement with Māori in infrastructure, including ownership of investment in infrastructure, and involvement of Māori businesses and individuals in infrastructure. As part of that work, we've come across the research Dr. Hughes is doing, which looks at indigeneity and infrastructure. We were interested in how it could overlap with our own research. Matthew, can you tell us a bit about indigeneity and infrastructure and what it means?

Matthew Hughes: Thanks, Clare. I've come to this topic after quite a few years of doing infrastructure research, especially disaster impacts on infrastructure. Over that time, with our focus on what loss of service means for communities, we've started to more broadly address impacts on indigenous peoples and in the Aotearoa context - on Māori. I'm part of a wider team of academics and doctoral scholars across the country who are increasingly focusing on this. I guess our general approach is similar to what Te Waihanga is doing, which is trying to understand the impacts of infrastructure development on Māori communities, and the role that Māori communities play in infrastructure development. And that interplay between development, economic development, and communities. So yeah, I hope that answers your question.

Clare Sinnott: When you talk about infrastructure, what do you think of as coming within that term?

Matthew Hughes: I think of it quite broadly. I've been inspired over the last year or so, by some writing that a scholar in the United States called Kevin McCaffree has produced around the role that infrastructure has played in the development of communities, societies and civilizations for a long time. I think most people tend to think about roads, electricity and telecommunication systems, water systems, schools and hospitals as infrastructure. That's all true. But what this broader framing reveals

is that actually, infrastructure is not something solely out of our industrial modernity. It's been around for a long time. So I'll just briefly cover what McCaffree's framework is. His framework is around viewing infrastructure as devices, technology, or structures that human beings use to extract process or distribute resources from the environment, to ends that are a benefit to us. Infrastructure are those systems, devices, structures that are collectively innovated, collectively constructed, and importantly, collectively used or accessible. So this contrasts with tools, for example, on the other end of the infrastructure-tool spectrum, which tend to be more individually innovated, constructed and used. So if we take this broad definition of infrastructure, of collective innovation, construction and utility, to extract resources from the environment and move them around for our benefit as societies, you start to see that a range of ancient civilizations and indigenous peoples have infrastructure. Particularly when we think about agriculture, the construction of structures, whether they be cultural infrastructure, religious structures, or more utilitarian ones, we start to see that all human societies have some form of infrastructure.

Clare Sinnott: So when you're thinking about indigeneity and infrastructure, it's that broader type of infrastructure you're looking at?

Matthew Hughes: Yes. I think when we start to take an archaeological perspective and look at material civilisation of indigenous peoples prior to, for example, European contact. Using this framing, helps us appreciate the sophistication, craftsmanship and the collective effort that's gone into sustaining their societies through agriculture and water management, and things like this. The intention is not to put a rather utilitarian and prosaic interpretation of those things onto the past, it's really meant to elevate and appreciate the skill and wider communal efforts that these societies put into their infrastructure. It actually provides a connecting line, a continuum of innovation and collective construction, and utility from those societies to our modern ones.

Clare Sinnott: I appreciate that this is quite early in your research journey in this area, but what are you currently seeing?

Matthew Hughes: Well, some of the work that we're starting to do with our students is to reinterpret the archaeological record through this lens. Other packages of work that colleagues and I are increasingly looking at is the impacts of

disasters; flood events, earthquakes and things like that on infrastructure systems of relevance to Māori communities at the hapū and marae level. Through some of the research programmes that have been well established over the last several years in New Zealand within the universities and the Crown Research Institutes, we have packages of work increasingly looking at the role that infrastructure plays into the community functioning in general and in particular with marae. This work also includes looking at the resilience of marae, marae as cultural hubs and support and resilience hubs after events. The cultural infrastructure of marae and their supporting facilities is obviously of extreme importance to local communities on a normal basis. There's quite good documentation now of the role that these facilities play to support not just Māori communities, but wider surrounding communities after disasters. That's really around that cultural infrastructure, and also ensuring that those facilities are resilient to power outages and interruptions to transport and water systems and things like that. That's a couple of examples of wider work that's occurring.

One other piece of work that I'm currently making some inroads on is documenting how post disaster infrastructure recovery impacts local communities. Going back over the last several years, New Zealand has experienced some major disaster events, flooding and earthquakes. Those do meet the definition of disasters. Often sudden events overwhelm local resources to respond to them quickly, and there's significant damage to infrastructure systems and communities. But also, we need to be mindful that sometimes in the drive to recover and restore those infrastructure systems, which often require significant construction works like earthmoving, that there are cultural and environmental considerations that need to be taken into account. Some of which are particularly pertinent to Māori. So we're trying to build up a portfolio of case studies of how post disaster reconstruction or real reestablishment of infrastructure systems have worked with close engagement and co-operation with Māori communities. Also documenting where things could have been improved, so that in future for the next inevitable event to come, we try and ensure that communities are not unduly harmed or disrupted in a cultural sense from these works.

Clare Sinnott: And from what you've looked at so far, are there any sort of emerging findings as to what works and what doesn't work?

Matthew Hughes: It's complicated, because different events are quite unique and communities are heterogeneous - they're diverse. That's to say, there's no one single opinion or voice that encapsulates all the thinking of marae communities, or hapū, or even wider iwi-level entities. This has been well established for some time now in the non-disaster context, with infrastructure development in particular. The requirement for community engagement and consultation, particularly with Māori, is quite clear that this needs to happen early in the process of projects being proposed and developed. There needs to be ongoing relationships that are personal, respectful, and open. That can be difficult to do sometimes. From the perspective of marae communities and hapū and iwi-level entities, there can be a lot of demands for engagement and consultation. A lot of individuals in these communities are essentially doing this on a voluntary basis. Everyone's time and energy is limited. The people behind the development projects, whether they be private developments or more public infrastructure developments, need to be mindful of the heavy toll that can be taken on local communities. Especially after a disaster event, this is even more so. So what has been documented, and what I think is well recognised now is the personal connections, the early engagement, the ongoing commitment to relationship building, will gain the trust of communities. Some of whom have a long history of distrust of government and other entities because of the history of this country.

Clare Sinnott: Earlier in our conversation, you touched on this concept of marae as infrastructure and the challenges facing some marae in terms of resilience. What kind of things are you seeing?

Matthew Hughes: Well, it's not so much the work that I've been doing, but Te Puni Kōkiri some years ago, published a report on the status of marae. That snapshot depicted marae as being relatively poor in services and access to services. A lot of marae in traditional ancestral locations, are often coastal and rural, and are often situated well away from public utilities, including well maintained roads. The status of water and sanitation utilities or infrastructure in and around the marae often require improvement. The structural status or the condition of a lot of the buildings and other facilities themselves, may need maintenance. One of the major things driving that, is essentially the lack of investment, but because a lot of the

investment would primarily need to come from the local communities themselves and maybe a lot of people weren't living locally, and a range of socio-economic factors meant that the physical status of marae, including their infrastructure, needed some improvement. Now, if we jump forward to today, that's very probably the case for a lot of marae in many, primarily rural communities. However, I think the situation is changing for some iwi, and the various hapū sub-tribes within them.

We have seen in recent years, for example, in Te Waipounamu, the South Island, with Ngāi Tahu. They are able, through the structure of their tribal entity, to essentially invest in upgrades and improvements in marae infrastructure. This comes after their Treaty of Waitangi settlement, and their ability to grow their economic base and therefore invest in their communities and in the cultural facilities that are of such great importance to them. I think that's a very valuable lesson. Other tribes are in a similar situation. But of course, there are many other tribes across the country still to receive any form of settlement and there are ongoing negotiations within themselves and between the Government to get to that point of redress. I mentioned before around the role that marae can play, as important community hubs that help support and provide resilience to the wider community and not just Māori. Having this ability to have resilient community facilities is of great benefit for everyone. I think there's a strong argument for fair and speedy redress for these communities, for their own benefit, but also I think, increasingly, the more I see resilient communities the more I see the wider area being resilient as well.

Clare Sinnott: As we touched on at the beginning, you're part of the Canterbury Engineering School. How has engineering teaching changed with respect to the incorporating of aspects of indigeneity?

Matthew Hughes: The intersection of indigeneity and engineering is something that I wouldn't say is completely new, but it's growing. Just as a bit of background, across the wider engineering education context, those universities and other institutions that teach undergraduate engineering programmes are internationally accredited to what is called the Washington Accord. This is the essentially international accreditation body that includes many countries now. It basically sets teaching standards around what engineers should learn at the undergraduate level. This

includes designing solutions that meet specified needs for cultural, societal, and environmental considerations. It means that their design and engineering reasoning needs to be informed by contextual knowledge of social and cultural issues. That means understanding and evaluating sustainability and impacts of engineering work, and the impacts of engineering projects and engineering practice on society and environment. So, it's up to the individual engineering educators to give effect to those intentions.

In the context of the University of Canterbury, where I work, we have what are called 'graduate attributes'. Our institution is not the only one that has this kind of declaration or intention to address certain attributes of our graduates. One of the key pillars is bicultural competence and confidence. At the University of Canterbury, we endeavor in all our teaching programmes where practicable, and where possible, to incorporate in our teaching, and this includes an engineering, information on the nature of contemporary Māori organisational structures. So this is the rūnanga or hapū/iwi corporation level of things, trying to address the traditional and contemporary realities of Māori society. Of course, the overarching context of we are a nation in which the Treaty of Waitangi is essentially one of our founding documents. So we do have an obligation to address that. We also are required to address the processes of colonisation and globalisation - with particular regard to the impacts of those things on indigenous communities. We try to encourage our students to think of how to apply these understandings in their chosen discipline and career. To that end, within the Faculty of Engineering, we are endeavoring to try and incorporate aspects of those into various of our undergraduate courses.

The University of Canterbury has a Diploma in Global Humanitarian Engineering, of which I'm a co-director, and one of the strands of that programme is specifically to address these things and provide our engineering students opportunities to engage with marae and marae communities and work with them on design, around climate resilience, disaster resilience, sustainability initiatives, and those sorts of things. This is really addressing the fact that we live in this nation that has the founding document of the Treaty, it's taking that seriously. Engineering is one of those disciplines that is starting to make headway to explicitly acknowledge this in our curriculum. It provides our students the legitimacy to engage with iwi Māori in their

careers. This will be required when our students graduate and if they do stay in Aotearoa New Zealand, the requirement to work with iwi is going to be there at some point. Particularly for those iwi that are significant economic and political forces, who themselves are developers, are owners of farms and have construction companies. This will be extremely important knowledge for our students to have so they can engage successfully as professional engineers, including on infrastructure development projects.

Clare Sinnott: Final question from me. What do you think the future might look like? Or what do you hope the future might look like in this area?

Matthew Hughes: That's a good question. I think it's important to recognise that the trend of - I guess for want of a better word - mainstream engineering. Being required to increase its intercultural literacy is only going to increase in Aotearoa New Zealand. As iwi Māori increasingly grow their capability, their autonomy, which may well include being involved in our own development projects. This ability to connect with the Māori worldview and sort of holistic approach to things is only going to become more important. We also have to recognise that this is a contested space. Not everyone agrees with this approach. In fact, Te Waihangā's own research in the development of the Infrastructure Strategy that you have released, clearly shows that some of these ideas are contested around parts of the New Zealand population not necessarily agreeing that this greater involvement of Māori and infrastructure development is the right way to go. I think those are voices that will probably continue to be heard. I think the overall trend is for a greater recognition, through the Treaty of Waitangi, of Māori being a partner in a range of different infrastructure development projects. I think we can see the integration of indigeneity or Te Reo Māori in particular, with engineering education, continuing.

I also want to make the point that while a lot of this focus is obviously relevant to Aotearoa, this is not inward looking and only relevant to here, we have a highly international student body at the undergraduate and postgraduate level in our institution. Many students come from nations with their own indigenous peoples, and their own long term colonisation processes that they have lived through. This phenomenon of increasingly recognising and ensuring that those indigenous voices are heard in infrastructure development projects is a global issue. What

we're doing here is helping foster that thinking that will be of global relevance. Only in the last few days, there's been media reporting of a range of different international collaborations and infrastructure development proposals that span multiple countries across the Eurasian continent. There's China's Belt and Road programme, there are initiatives lead out of other coalitions of countries. They all revolve around international and transport infrastructure development. In many of the areas and regions across the world where these developments are going to occur there are indigenous communities. This issue is not going away. In addition to all the other changes going on in the modern world, I think there's going to be an increasing demand that engineering as a practice and infrastructure developments recognise the positive and negative impacts of their developments on indigenous communities. The engineering profession is going to have to work harder to ensure it has the social license and the legitimacy to conduct these projects. We just need to remind ourselves that all the economic benefits that can come from infrastructure projects need to be widely made available, especially to those communities who potentially are negatively impacted by these developments. So what I hope to see for the future is the engineering profession increasingly taking this seriously and that the flourishing that can come from our built environments be widely shared. So that's what my hope is.

Clare Sinnott: Dr Hughes, tēnā rawa atu koe - thank you very much. For those listening, ka nui tēnei, that's it for now. Hei konā – goodbye.

Narrator: Thanks for listening. Find out more about the work Te Waihangā is doing to transform Aotearoa at tewaihangagovt.nz