

Nona Hohepa-Taute



Photo:
University
of
Auckland.

Born where and when

Woollongong, 1994; he moved to Rotorua when he was two. Ko Whakapoungākau me Maungatautari ngā maunga; ko Te Rotorua-nui-a-Kahumatamomoe te roto; ko Waikato te awa; Ko Ruamata me Maungatautari ngā marae.

Nona sometimes goes by Taute, the surname on his birth certificate from his Tainui side, and sometimes also by Hohepa, from his Te Arawa side. “We form connections by iwi and hapū, not our surnames.”

School and subjects

Te Kura Kaupapa Māori o Ruamata in Rotorua; “maths and science, but I didn’t have physics. A lot of kura students are interested in STEM subjects, but kura often can’t offer STEM courses. It’s up to students to push their schools to provide ways to do that, and it also comes down to the teachers.”

How he got into science

“I was curious about how structures and moving parts worked – fascinated with bridges, tunnels and skyscrapers and who designed them. I wanted to be a part of that. I’m quite an outdoorsy person, so engineering suited me better than architecture, where you stay inside a lot.”

Training and jobs

To get into engineering at the University of Auckland, Nona had to get A- averages in physics and calculus at the university’s summer school. He was supported by the Tuākana mentoring programme for Māori and Pacific students, and gained an Engineering degree

with Honours. He went straight into PhD study (“I had the backing from iwi to do that”), and expects to finish in 2022. He also teaches in undergraduate Engineering courses.

Field of science

Civil and environmental engineering.

Research topic

Nona’s PhD in geothermal engineering focuses on how to better integrate Māori knowledge and values into geothermal engineering.

How he finds things out

Geothermal engineers make geothermal reservoirs; drill, test and measure geothermal fields and their changes, with ground penetrating radar and other tools; and study the interaction of underground fluids and rock.

For his PhD, Nona is using community-based research, including wānanga with iwi and hapū



Nona in
Auckland
while
electro-
fusion
welding
a 600mm
diameter
PE pipe.



in Rotorua, Kawerau and Taupo, to establish research goals and get their input in almost every aspect. The wānanga discussed Māori values related to geothermal resources and engineering; Nona compiled and quantified those into a mathematical geothermal assessment of social, environmental, and economic impacts, to create indicators of how those values are upheld.

“We relayed it back to participants, got their feedback and refined the assessment, to ensure that we had preserved the foundation of the Māori knowledge we’d used.”

He hopes to develop an impact assessment framework that includes Māori, economic, social and environmental values, to enable engineers to assess all those factors at once. He is adapting [Kepa Morgan’s Mauri model](#).

He hopes his research will measure Māori interests in geothermal engineering, and enable them to be integrated into decision-making in geothermal projects.

Mātauranga Māori

Nona’s wānanga identified a “lack of early, meaningful and mutually understood engagement between engineers and Māori as the primary cause of disputes” about geothermal projects. He identifies Rūaumoko, the atua of earthquakes, volcanoes and heat from the ground, as the foundation of Māori beliefs and decisions about earthquake hazards.

“Māori believe that he is very powerful and non-forgiving”, and that when humans harm his mother Papatūānuku, he will respond by breaking the ground and flattening human-made structures. Maori therefore fiercely

Ngā Kupu

Ahi tipua - Geothermal/volcanic activity

Atua - God

Ngāwhā - Geothermal, boiling springs, boiling mud, geyser

Pūkaha - Engineering

Punahiko ngāwhā - Geothermal power station

Roto - Lake

Wānanga - Seminar, conference.

Te Aka Māori Dictionary and Paekupu



protect geothermal resources.

Nona says that earthquake engineering standards do not take account of Māori experience in building structural and community resilience to earthquakes and eruptions, and that conflict between the value systems has been aggravated by a 2016 law which increased the minimum earthquake resilience standard for all buildings.

Nona describes Mātauranga Māori-based decision-making as using the techniques and customary values from before European settlement. It includes tino rangatiratanga (sovereignty) and kaitiakitanga (guardianship). “It ensures that Māori are able to grow in knowledge, hand it down and gain economically.” In earthquake engineering, it means that engineers act under the advice of Māori representatives to account for the role of Rūaumoko as the enforcer against damage to geothermal systems.

What he likes about science

“You can always find an answer. For example, with a skyscraper you can see how the framing distributes the wind load to the foundations. You can go deeper and deeper into the detail of that skyscraper, the atomic structure of the nuts and bolts, to find how it works.”

Links

University of Auckland, 2020. [Fusing Mātauranga Māori and geothermal science](#) (5m video in te reo with English subtitles)

N. Taute, T. Fa’au & J.M. Ingham, 2019. [Rūaumoko: More than just a symbol](#). (11p article)

Nona Hohepa-Taute, Te Ngāwhā me te ao Māori/ Geothermal energy and the Māori world ([7m video in te reo with English subtitles](#)); ([4m video](#)); ([2m video](#)).

Nona has paddled in waka ama since school, and was steerer for the NZ six that won the open men’s grade in the world champs in 2016. Here he competes in the Takapuna Beach Cup Waka Ama Race in 2019.



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