

# TE MAHI TAHI MĀORI ENGAGEMENT AT ESR



ESR

*E ngā iwi huri noa i te motu,  
tēnā koutou, tēnā koutou, tēnā koutou katoa.*

*Ko Te Whare Manaaki Tangata, Taiao hoki e mihi atu nei.*

**Ko tā Te Whare Manaaki Tangata, Taiao hoki, (Institute of Environmental Science and Research) he whakatairanga i te mātauranga pūtaiao hei tautoko i ngā kaituhi kaupapa here, i ngā kaunihera ā-rohe, i ngā iwi me ngā hapori ki te mahi tahi ki te kimi whakautu ki ngā take nui – kia noho haumaruru ai te tangata, ngā rawa me te taiao i Aotearoa me te ao whānui.**

Nā te mātauranga pūtaiao ka puta ngā whakatau e manaakitia ai te hauora o te tangata, e tiakina ai ngā mahi hokohoko kai, e noho haumaruru ai ngā wai māori me ngā wai whenua, waihoki, e ea ai ngā take pūtaiao a ngā whare whakawā o te ture.

Kei tōna 400 ngā kaimahi a Te Whare Manaaki Tangata, Taiao hoki (ESR). Ko tā mātou he whakaputa mātauranga, rangahau me ngā ratonga taiwhanga pūtaiao kia tino whai hua ai ngā moni ka whakapaua ki ngā kaupapa pūtaiao me te pūnaha hiranga i Aotearoa.

Ko te ESR anake te hinonga rangahau a te Karauna e wānanga ana i ngā hononga i waenganui i te oranga o te tangata me te oranga o te taiao.

*At ESR (Institute of Environmental Science and Research) we use science to build stronger knowledge systems that support policy-makers, local government, iwi and communities to work together to solve complex problems – protecting people, products and the environment in New Zealand, and around the world.*

*Our science helps guide the decisions that safeguard people's health, protect our food-based economy, improve the safety of our freshwater and groundwater resources, and provide the justice sector with expert forensic science.*

*ESR employs nearly 400 staff to deliver world class knowledge, research and laboratory services that help New Zealand get the best out of its investment in science and innovation.*

*ESR is the only Crown research institute that explores the connections between human and environmental health.*



Ko Cardiff Takumanawa Carlton (Ngāpuhi, Te Whānau-ā-Apanui) i te marae o Te Kaiwaha, ki Waiwhatawhata.  
Cardiff Takumanawa Carlton (Ngāpuhi, Te Whānau-ā-Apanui) at Te Kaiwaha Marae, Waiwhatawhata.

*Whakaahua i te uhi: E whakaahuatia ana ngā taonga a Ngāti Rangitihī mā te matatopa me te matawai ahu-3. Mai i te taha mauī: ko Knox Feterika rātou ko Christian Pena, ko Maher Hatab, ko Tipene Marr (nō Ngāti Rangitihī), ko Jason Barr, ko Kurt McManus.*

Cover image: Using a drone and a 3D scanner to record Ngāti Rangitihī's cultural assets. From left: Knox Feterika, Christian Pena, Maher Hatab, Tipene Marr (Ngāti Rangitihī), Jason Barr and Kurt McManus.



## TEKAU NGĀ RATONGA MATUA:

- ✔ **Te Oranga Taiao:** e tūhura ana i te pānga o ngā āhuatanga katoa o te taiao ki te tangata (hei tauira ko te ārai-koiora) me te pānga o te tangata ki tōna taiao (hei tauira ko te kounga o te para wai me te wai māori)
- ✔ **Te Oranga Wai:** e rangahau ana i ngā āhuatanga katoa o te wai me te hiranga ki te tangata.
- ✔ **Te Oranga Kai:** e kimi māramatanga ana, e aromatawai ana hoki i ngā whakatūpatotanga me ngā painga o te kai.
- ✔ **Te Hihinga:** e kimi māramatanga ana, e arotake ana hoki i ngā momo hihinga māori o te taiao me te noho haumaruru o te tangata i ngā momo hangarau hihinga (arā, ko ngā hihiri kōkiri me te ārai koiora).
- ✔ **Ngā Mate Rere:** e tuku atu ana i ngā ratonga mātāi koiora moroiti ā-taiwhanga pūtaiao hei tautoko i ngā mahi mātāi koiora moroiti i ngā taiwhanga pūtaiao o te motu.
- ✔ **Te Hauora Tāngata:** e rangahau ana i te pūtakenga mai me te pānga o ngā momo tahumaero me te mārāma ki te hōrapa o te pānga o ngā mate nei. He whakaheke hoki i ngā rerekētanga ā-hauora i waenganui i te tangata.
- ✔ **Te Mātauranga Tāoke Tāiao:** ko te kimi huarahi e noho haumaruru ai te taiao, kia mārāma ake ai te pānga o ngā paitini ki te taiao.
- ✔ **Te Whakahaere Pūnaha Pārongo Pūtaiao:** ko te whakatū me te tautoko i ngā momo pūnaha mātauranga pūtaiao hei hāpai i ngā kaupapa pūtaiao mō te tangata, mō te taiao hoki.
- ✔ **Te Pūtaiao ā-Ture:** he hāpai i te hiranga o te mātauranga koiora ā-ture (DNA) me ngā mahi e pā ana ki ngā tarukino, ki ngā paitini me ngā āhuatanga katoa o ngā tūhuratanga ā-ture. Ko mātou anō ngā kaitiaki o te pātengi raraunga DNA.
- ✔ **Te Whakarite Whakaaro, Rangahau, Ratonga Pūtaiao:** ko te rangahau i ngā momo rautaki e whai wāhi mai ai ngā rōpū e tika ana, me te tangata whenua hoki, ki ngā whakataunga mō ngā take matatini.

## THIS MAHI SPANS TEN KEY SERVICE AREAS:

- ✔ **Environmental Health:** investigating all aspects of the environment's impact on people (eg. biosecurity), and people's impact upon their environment (eg. waste and drinking water quality).
- ✔ **Water Management:** developing a holistic understanding of water and its importance in our lives.
- ✔ **Food Safety:** understanding and assessing the risks and benefits of food.
- ✔ **Radiation:** Understanding and monitoring natural radiation in our environment, and the safe use of radiation technologies (x-rays, biosecurity).
- ✔ **Communicable Disease:** providing specialist and reference microbiological laboratory services to all clinical microbiology laboratories nationwide.
- ✔ **Population Health:** Studying the causes, incidence and distribution of disease, and helping reduce health inequalities.
- ✔ **Environmental Toxicology:** providing solutions for a safer environment by understanding the effects of contaminants in our environment.
- ✔ **Science Information Management Systems:** providing and supporting knowledge systems for better human and environmental science.
- ✔ **Forensic:** applying expertise in forensic biology (DNA) and kaitiaki of the DNA database, illicit drugs, toxicology, and all aspects of crime scene investigation.
- ✔ **Systems Thinking, Action Research, Service Science:** research supporting inclusive decision-making in complex issues with a range stakeholders including tāngata whenua.



Ko Hone Taimona (Ngāpuhi) o Te Hauora o Hokianga rāua ko Māroa Te Tai (Ngāpuhi) ki te marae o Te Kaiwaha i Waiwhatawhata.

Hone Taimona (Ngāpuhi) from Hokianga Enterprises Trust (Hauora Hokianga) and Māroa Te Tai at Te Kaiwaha Marae, Waiwhatawhata.

## NGĀ WHĀINGA

### KO NGĀ WHĀINGA O TE RAUTAKI WHAKAWHANAKE MĀORI:

- Me hāngai, me tautoko hoki ngā kaupapa pūtaiao me ngā rangahau a te ESR i ngā uara me ngā wawata o te Māori.
- Me mahi tahi ki ngā Māori mō ngā take nui e pā ana ki te oranga taiao, ki te hauora o te tangata me ngā take pūtaiao ā-ture.
- Me whakawhitiwhiti kōrero mō te mātauranga Māori me te mātauranga pūtaiao kia puta mai ai ngā mātauranga whai kiko hei ārahi i ngā kaupapa here ā-motu, ā-rohe anō hoki mō ngā take taiao.

### KO NGĀ KAUPAPA O MUA:

#### TE WHAKAWHANAKE HAPORI MĀORI ME TE HAUORA O HOKIANGA

Kua roa te rōpū Pūnaha Papori o te ESR e mahi tahi ana ki Te Hauora o Hokianga. Arā noa atu ngā kaupapa oranga taiao kua rangahaua ngātahitia i roto i ngā tau:

- Ko te aromātai i te wāhi ki te tino rangatiratanga me te kaitiakitanga i te angitutanga o te kaupapa mātāmua o Ngā Puna Wai o Hokianga (ko te wai inu haumaruru), nā te tahua o te Manatū Hauora.
- Ko te whakatakoto i tētahi mahere e mārāma ai ngā take hangarau me ngā tikanga Māori e pā ana ki te wāhi tuku para wai i te marae.
- Ko te whakatakoto i tētahi anga tikanga-rua hei tautoko i te whakawhanaketanga mai o ngā kaupapa here me ngā hōtaka e pā ana ki te wai inu haumaruru i ngā hapori Māori.
- Ko te aromātai i ngā take e whai hua ana te kaupapa o te Drinking Water Assistance Programme i waenganui i ngā hapū o Hokianga. Mā konei e whakatakotohia ai tētahi mahere hei tuku i te wai inu haumaruru ki ngā iwi o Hokianga ā ngā tau e heke mai nei.

### TE MATE HUKA

Ko He Pikinga Waiora tētahi wāhanga matua i roto i te rangahau o Healthier Lives National Science Challenge. E arahina ana te Healthier Lives National Science Challenge e Maui Hudson mai i te Whare Wānanga o Waikato. Ko te whāinga a He Pikinga Waiora ko te kimi huarahi tōtika e heke iho ai te mate huka i waenganui i te iwi Māori – mai i ngā tohu tuatahi o te mate huka tae noa atu ki te whanaketanga ake o taua mate i roto i te tangata. Nā te rōpū Social Systems tētahi mahere i whakatakoto e whakamārama ana i ngā āhuatanga e pā ana ki ngā tohu tuatahi o te mate huka kia kitea mai ai ngā ara e āhei ana ngā momo hapori ki te kaupare atu i tēnei mate.

Ka mahi tahi te rōpū o Social Systems ki He Pikinga Waiora ki te waihanga mai i tētahi mahere (he rautaki mahi) e tino whaihua ai te Māori Implementation Science ki ngā kaupapa here me ngā mahi i te rāngai hauora. Ko tā te Māori implementation science, he whakakotahi i ngā kaupapa Māori, i ngā whakaaro pūnaha, i ngā momo rangahau i waenga i te hapori me ngā momo kaupapa rangahau ki te whakatairanga i te tūhonotanga mai o ngā putanga rangahau me ngā momo taunaki i roto i ngā kaupapa here me ngā mahi hauora.

## NGĀ WHĀINGA

### OUR MĀORI DEVELOPMENT STRATEGY AIMS TO:

- Ensure that ESR's science and research is relevant and supportive of Māori values and aspirations
- Work together in partnership with Māori on the environmental health, public health, and forensic science issues that matter most.
- Explore the interface between mātauranga Māori and science so our combined knowledges can better guide national and local policies for environmental management.

### PAST PROJECTS INCLUDE:

#### MĀORI COMMUNITY DEVELOPMENT WITH HAUORA HOKIANGA

ESR's Social Systems group has a long-standing research partnership with Hauora Hokianga. Research has spanned several environmental health projects including:

- Examining the role that tino rangatiratanga and kaitiakitanga played in the success of the Ministry of Health funded Ngā Puna Wai o Hokianga (safe drinking water) pilot project
- Developing a 'roadmap' that bridged technical and cultural understandings of marae onsite waste water disposal
- Development of a bicultural framework to support improvements in drinking water policy and programme development for Māori communities
- The examination of effective Hokianga hapū engagement with the Drinking Water Assistance Programme to develop a plan to deliver safe drinking water in the Hokianga for the future.

### DIABETES

This study contributed to He Pikinga Waiora, a core project within the Healthier Lives National Science Challenge led by Maui Hudson from the University of Waikato. He Pikinga Waiora aims to develop sustainable and effective evidence-based interventions to help slow the progress of pre-diabetes to diabetes amongst Māori. The Social Systems group developed a systems map of the factors underpinning the problem of pre-diabetes to identify better pathways for how communities can make a difference.

The Social Systems group is continuing to work with He Pikinga Waiora and is developing a roadmap (or action strategy) to maximise the impact of Māori Implementation Science within health policy and delivery. Māori implementation science blends kaupapa Māori methods with systems thinking, community-based participatory research and knowledge translation theories to promote the integration of research findings and evidence in healthcare policy and practice.

## CENTRE FOR INTEGRATED BIOWASTE RESEARCH (CIBR):

Tekau ngā whakahaere e whai wāhi mai ana ki te rōpū pūkenga-rau o CIBR. E mahi ngātahi ana ngā whakahaere rangahau o Aotearoa, ngā whare wānanga me ngā kairangahau ki te kimi huarahi e tika ai te tukuruia i ngā para pōpopo. Ko ngā kaupapa o nātata nei:

▼ **Ko Kaikōura** – Ko tā te rangahau nei, he tautoko i Te Rūnanga o Kaikōura, i Te Kaunihera ā-Rohe o Kaikōura me te hapori ki te kimi ake me te arotake i ngā huarahi e taea ai e rātou te tuku atu i ngā parakaingaki. Ko te whakataua ko ngā wāhi e tika ana ki a rātou ko ngā ngahere me ngā whenua kāore e whai wāhi ana ki ngā mahi whakatipu kai. Koia nei hoki ngā huarahi he māmā te utu.



Ko te kaupapa o 'Up the Pipe' i te tau 2014 – Ko Jacqui Horswell me ngā ākonga o te tau 6 – 8 o Te Kura o Corinna, i Porirua. Kei te whakamātautau ngā tamariki i te pānga o ngā wai para ki ngā tipu mā te ine i te mahi whakaeto-tukuwai a te one.

*'Up the Pipe' project work in 2014 – Jacqui Horswell with year 6–8 students from Corinna School, Porirua. The students are using a soil lysimeter to explore the impacts of household grey water on plants.*

▼ **Ko Up the Pipe** – Nā te mahi tahi ki ngā hapori o Kaikōura me Mōkai i puta mai te kaupapa o 'Up the Pipe'. I mahi ngātahi ngā kaupūtaiao rātou ko ngā kaiako ki te waihanganga i ngā rauemi mātauranga hei tautoko i ngā kāinga ki te whakaputa whakataua whai take mō 'ngā mea ka tukuna ki te arawai'.

## CENTRE FOR INTEGRATED BIOWASTE RESEARCH (CIBR):

CIBR is a multidisciplinary collaboration between 10 New Zealand research institutes, universities and research partners dedicated to developing appropriate and sustainable solutions for reusing biowastes. Recent projects include:

▼ **Kaikōura** – This research supported Te Rūnanga o Kaikōura, Kaikōura District Council and the community to explore and evaluate various options, and make decisions about the best thing to do with their sewage sludge. The project determined that land application to forestry and non-food chain use were the most appropriate and cost effective ways to reuse the sludge.



*Photo courtesy Marlborough Express*

Ko ētahi o ngā kaimahi o te kaupapa o 'Up the Pipe' ki te marae o Takahanga ki Kaikōura i te tau 2012. I puta mai ngā rauemi mātauranga mō 'Up the Pipe' i tēnei huihuiinga o ngā ākonga o te kura tuarua o Kaikōura rātou ko ngā kaiārahi o te hapori. Ko tā te rauemi nei he tautoko ngā ākonga, ngā whānau me ngā hapori ki te whakaiti i te nui o te para i te kāinga me te pānga o aua para ki te taiao.

*Some of our 'Up the Pipe' project team at Takahanga marae, Kaikōura in 2012. This hui with Kaikōura high school students and community leaders helped shape the CIBR 'Up the Pipe' educational resources, supporting school students, whānau and communities to reduce household wastes and their impacts upon the environment.*

▼ **Up the Pipe** – The work with the Kaikōura and Mokai communities helped shape the 'Up the Pipe' project where scientists worked with local school teachers to develop educational resources to support better household decision-making on 'what goes down the drain'.







### TE TIAKI TAONGA MĀORI

Kua mahi tahi mātou o te ESR ki a Ngāti Rangitihi o Matatā me tētahi kamupene whakaahua ahu-3, arā, ko Blue Cube Consulting, ki te waihanga mai i tētahi pūrere whakaahua marae ko 'Te Rererunga' te ingoa. Mā Te Rererunga e mau ai ngā taonga tuku iho me ngā wāhi tapu o ngā iwi o te motu. Nā ngā pūkenga ahu-3 me ngā pūkenga whakaahua o te ESR kua puta mai ai tēnei taputapu motuhake e tiakina ai ngā taonga tuku iho mā ngā uri whakaheke.

Ko te mahi a Te Rererunga he hopu, he pupuri me te rokiroki i ngā kōrero mō te marae me āna taonga mō te tūpono ka pā mai tētahi aituā, ka ngaro kē rānei ēnei mea. Ka puritia ngā maharatanga me ngā kōrero mō ngā whare me ā rātou taonga. He āwhina hoki te puna rokiroki mō te rārangi inihua.

Mā te pūrere nei ka āhei ngā iwi e noho ana ki ngā tōpito katoa o te motu ki te toro atu ki ngā mātauranga me ngā mōhiotanga kei ō rātou marae. Kia ū tonu ai te taukaea i waenganui i ngā iwi me ō rātou marae.

### PRESERVING MĀORI CULTURAL ASSETS

ESR partnered with Matatā based iwi Ngāti Rangitihi and 3D visualisation experts Blue Cube Consulting to co-develop a virtual marae visualisation platform named Te Rererunga (the 'fly over'). Te Rererunga allows iwi to record, document, preserve and share the unique cultural heritage of their marae and wāhi tapu.

The application builds on ESR's 3D capture and visualisation expertise to deliver an immersive and interactive culture heritage preservation and education tool.

Key functions of Te Rererunga include the archival record of a marae and its contents should damage or loss occur, better informed insurance cover and preserving the memories and stories behind significant buildings and artefacts.

The application enables the transition of knowledge exchange from an oral tradition to an interactive process that can engage with a wider and more dispersed audience, enhancing the connection between iwi members and their marae.



### TE WHAKAPAI AKE I NGĀ WAI MĀORI MĀ NGĀ HAPORI O TE TAITOKERAU

Nā runga i ngā huringa o te āhuarangi kei te whakamātauria te wai māori o ngā hapori o Te Taitokerau e te rōpū tiro-tiro wai o te ESR. E arahina ana tēnei mahi e Te Hiku Iwi Development Trust. Kei te mahi tahi rātou ko Te Kunenga ki Pūrehuroa me te ESR i raro i te kaupapa o The Deep South National Science Challenge.

### IMPROVING DRINKING WATER SAFETY FOR NORTHLAND COMMUNITIES

ESR's water team is examining changes in Northland Māori communities' drinking water safety and security due to climate change. The work is being led by Te Hiku Iwi Development Trust in collaboration with Massey University and ESR as part of The Deep South National Science Challenge.

## NGĀ KAI O ĀPŌPŌ

He mea arataki te kaupapa nei e ngā kaipūtaiao papori. Ko tā rātou he whakawhiti kōrero ki ngā rōpū e whai pānga ana (arā, ko ngā kaipūtaiao, ko te hunga ahumahi, ko te kāwanatanga me te Māori) ki te kimi i ngā huarahi tika hei whakapau pūtea pūtaiao ki ngā momo hangarau mahi kai o āpōpō.



## TE NOHO HAUMARU ME TE NOHO PŪMAU O NGĀ MAHINGA KAI

Anei ngā kaupapa o te ESR mō ngā mahinga kai:

- Ko te kimi tikanga hou e kitea wawetia ai ngā wā e kino ana ngā mātaītai.
- Ko te arotake i ngā mahi kimi para-tūtae e taea ai te kite i te para-tūtae i ngā taunga mātaītai.
- Ko te whakamātautau hihinga i te tītī kia kitea ai te pānga o te parekura karihi ki Fukushima ki te taiao.

## TIKANGA PŪTAIAO Ā-TURE

He huinga kaupapa tēnei e rangahau ana me pēhea e hāpaitia ai ngā tikanga Māori i roto i ngā ratonga pūtaiao ā-ture. Nā te rangahau nei kua puta mai tētahi pukapuka hei ārahi i ngā kaimahi o te ESR e pā ana ki ngā tikanga Māori i ngā tūmomo wāhi taihara.

Kei te mahi te ESR ki te whakapakari i tō mātou hononga ki a ngāi Māori kia āhei mātou ki te tāpae i ō mātou pūkenga me ō mātou rauemi pūtaiao hei tautoko i te whakatutukinga o ō rātou wawata. Ka ea ai tēnei whāinga mā te whakapakari i tō mātou mōhiotanga ki te ao Māori huri noa i te ESR kia ū ai, kia tika ai hoki ā mātou whakawhitinga ki a ngāi Māori, ā tae noa ki ngā rā o anamata.

## MŌ ĒTAHI ATU PĀRONGO MANAGER MĀORI ECONOMY – JYMAL MORGAN WHAKAPĀ ATU KI:

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## FUTURE FOODS

*This social science led project engaged different stakeholders (scientists, industry, government and Māori) in conversations to explore the acceptability, safeguards and opportunities for science investment in future food technologies.*



## MAKING MAHINGA KAI SAFER AND MORE SUSTAINABLE.

*ESR has undertaken several projects on mahinga kai including:*

- *Finding new ways of finding out when shellfish are unsafe to eat.*
- *Evaluating faecal source tracking methods for the identification of human faecal contamination in shellfish growing areas.*
- *Testing of tītī for radiation after the Fukushima nuclear disaster to track environmental contamination.*

## TIKANGA FORENSICS

*This is a series of projects exploring how values within tikanga Māori can be upheld in the provision of forensic services. This research resulted in a booklet provided to ESR staff to assist with protocol at crime scenes.*

*ESR is working towards expanding and growing our engagement with Māori to ensure we succeed in supporting Māori to realise their aspirations through leveraging our science capability and resources. We envision achieving this by, increasing our understanding of Te Ao Māori across the whole of ESR to ensure sustained meaningful engagement with Māori well into the future.*

## FOR FURTHER INFORMATION MANAGER MĀORI ECONOMY – JYMAL MORGAN CONTACT DETAILS:

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# KEEPING PEOPLE SAFE AND HEALTHY THROUGH SCIENCE

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