CLIMATE CHANGE SCENARIOS FOR THE AOTEAROA NEW ZEALAND TERTIARY EDUCATION SECTOR

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Tertiary Education Sector
Climate Futures Group

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Representatives from the institutions to the right comprise the Tertiary Education Sector Climate Futures Group (TESCFG), which was formed to deliver this project.

The TESCFG acted in the capacity of an advisory group throughout the process of developing this report and will support their respective institutions in future climate planning.

He whakarāpopotanga | Executive summary

The climate is changing, and the effects are being felt throughout the world. Aotearoa New Zealand's tertiary education sector must continue to champion climate mitigation and a fair and just transition for our communities. The sector must also plan for how it can adapt to the impacts of climate change.

To help the sector prepare, this climate scenarios project is a sector-wide effort to examine the question: **How will climate change impact Aotearoa New Zealand's tertiary education sector between now and 2100?**

It is recognised that the impacts of climate change will be different for each tertiary institution, or even within institutions for those who have campuses in different locations. It was decided, however, that a collaborative approach would provide the sector with a foundation from which to build from when developing their own individual climate plans.

This climate scenarios report is a tool to help each institution with that planning. The scenarios are strategic provocations, rather than predictions. They cover a range of factors and deliberately diverge from business as usual to stretch thinking on how to respond to a variety of plausible futures. More extreme scenarios were considered but, ultimately, the narratives were developed to maintain plausibility and to support effective planning discussions.

The report is the result of a highly collaborative, cross-sector process. The core project team came together from four different institutions. They were guided and supported by both an advisory group of sustainability practitioners and a governance group of senior leaders from across all universities, Te Pūkenga and wānanga.

The insights and ideas used to build the scenarios were sourced from over 100 sector stakeholders (students, staff, iwi, central and local government, business and civil society) who attended workshops across the country. The scenarios have been reviewed by the advisory group for usability and a range of academics from across the country for plausibility.

The uara (core principles) that guided the development and delivery of this project were:

- **Kotahitanga (collaboration)** – all participants in the project worked together for mutually beneficial outcomes.
- **Māramatanga (understanding)** – the project strived to weave together diverse sources of knowledge, including mātauranga Māori, that will provide the most useful insights to enable us to plan for the future.
- **Whanaungatanga (relationships) –** an inclusive approach was adopted to ensure diverse perspectives (specifically including te ao Māori) were welcomed and encouraged.

The climate scenarios have been crafted to be challenging and with the intent to promote discussion. This means that what is described might be intensely personal. By having the difficult conversations now, there is hope that Aotearoa will be prepared for what is to come and that the tertiary education sector will continue to be a vital part of society.

The final section of the report provides a practical framework for institutions to use as part of their climate adaptation planning. Each institution should first adapt and utilise the scenarios in ways that fit their own circumstances.

Recently the External Reporting Board (XRB) established standards to guide the climate-related disclosures of those entities legally required to report.

While the tertiary education sector is not currently required to report, it is still good practice and will prepare the sector for any expansion of legal reporting requirements. As such, this project has been developed with the XRB standards in mind.

The scenarios

Four scenarios have been developed to consider both the physical impact of climate change and the societal response to those impacts.

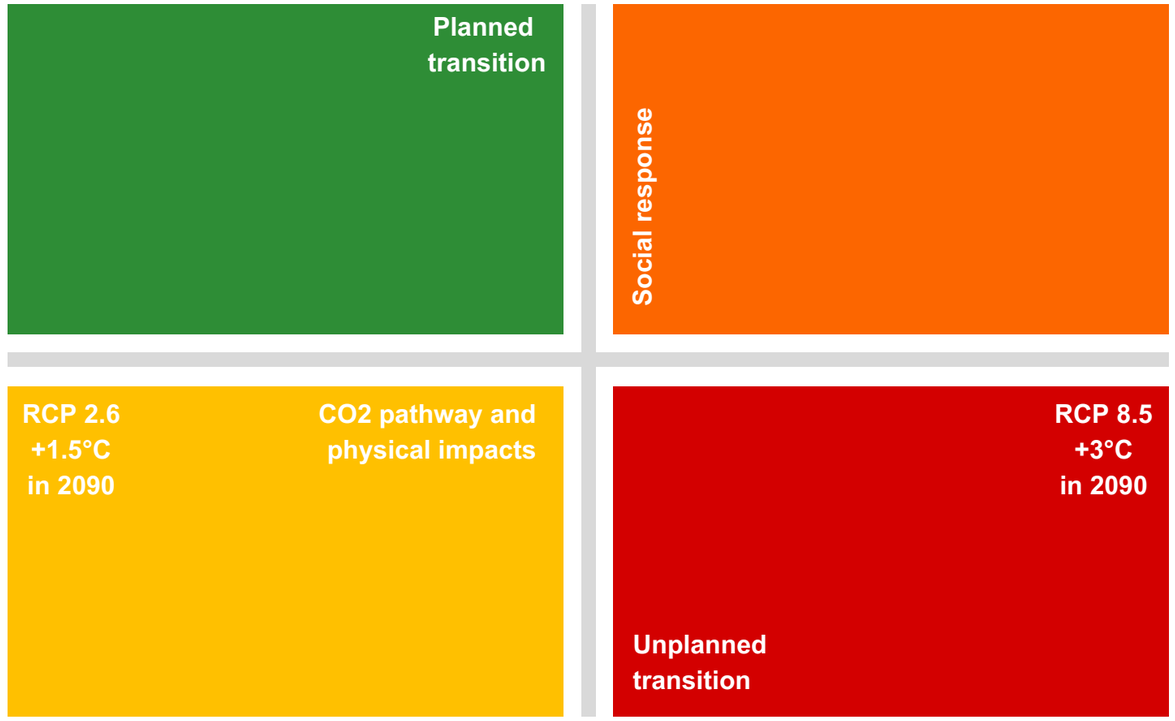
The scenarios which consider a future with **low physical impacts** describe the Aotearoa tertiary sector in a world where global warming has been kept to a minimum. In contrast, the scenarios which consider a future with **high physical impacts** describe the Aotearoa tertiary sector in a world where global warming exceeds three degrees by 2100.

The scenarios which consider a future where there is a **planned societal response** describe the Aotearoa tertiary sector in a world where all parts of society have proactively prepared themselves for the impacts of climate change. In contrast, the scenarios which consider a future where there is an **unplanned societal response** describe the Aotearoa tertiary sector in a world where the impacts of climate change are met reactively and the response lacks coordination.

Each scenario was also described on specific time horizons. In this case, we agreed on key years as 2040 and 2090, which aligns with NIWA's climate change scenarios.

To make the scenarios more relatable and impactful, a series of vignettes have been included. This set of four fictitious characters have been developed by the project team to provide a more personal account of how the scenarios might impact individuals within the sector. They draw from personal experience, but do not depict any real-life individuals.

Scenarios quadrants



Summaries of the scenarios

Sweet As

RCP 2.6 - Low physical impacts with a planned societal response

Indicator	2040	2090	Indicator	2040	2090
Financial health of the sector	↘	↗	Student numbers:		
Government influence on the sector	→	→	• Total	↗	↗
Public support for the sector	↗	→	• Domestic	→	↗
Innovation and entrepreneurship	↗	↗	• International	↗	→
Student progression to employment	↗	↗	• Māori	→	↗
Location of tertiary learning	H	C	• Pacific Peoples	↗	→

Key: ↗ Upward/Positive trend ↘ Downward/Negative trend → Trend maintained
C Campus H Hybrid R Remote L Local

2040

There has been strong public support for climate action within Aotearoa. As a result, society has shifted to low-carbon lifestyles.

The tertiary education sector in Aotearoa played a key role in promoting the importance of climate action.

Tertiary education institutes are working collectively to achieve cost-efficiencies, due to tighter funding.

There is also a growth in research centres for climate action, with strong inclusion of mātauranga Māori and connection to the Pacific Islands.

2090

Aotearoa's economy is strong and there has been a boost in government funding for tertiary education. There has also been an increase in student numbers and research investment.

There is a stronger connection between tertiary education, the public sector, and business, which provides a source of talent and a solid career pathway.

Technology development influences changes in teaching practices, but creates cybersecurity risks and eventually leads to a shift back to in-person learning.

She'll be Right

RCP 2.6 - Low physical impacts with an unplanned societal response

Indicator	2040	2090	Indicator	2040	2090
Financial health of the sector	↘	↘	Student numbers:		
Government influence on the sector	↘	→	• Total	↘	→
Public support for the sector	→	→	• Domestic	→	↘
Innovation and entrepreneurship	↘	↗	• International	↘	↗
Student progression to employment	↗	→	• Māori	↗	→
Location of tertiary learning	H	C	• Pacific Peoples	→	→

Key: ↗ Upward/Positive trend ↘ Downward/Negative trend → Trend maintained
C Campus H Hybrid R Remote L Local

2040

Overall, the economy is weakened and government funding to the tertiary education sector decreases. International student mobility declines, which places further pressure on the sector. As a result of financial pressure, some tertiary institutions are forced to close. Where institutions do remain operational, campuses are downsized.

Teaching is increasingly delivered in regional hubs that also provide opportunities for work-integrated learning. Meanwhile, vocational education is stable.

While there is less government funding for research, there is growing commercialisation of research. Businesses (in particular, Māori businesses) are taking advantage of consumer-driven opportunities in climate action.

2090

There are numerous social challenges across Aotearoa as society reacts to the impacts of adverse weather events. The number of tertiary education institutions continues to shrink, with student numbers being redistributed across those remaining.

Only the best academic staff remain and have attracted international students back in large numbers due to the quality of teaching. This is despite financial pressure resulting in fewer course offerings and larger class sizes.

There is a growing venture capital community associated with each of the remaining tertiary institutes, which is an economic bright spot.

Most research is conducted by Crown research centres.

Summaries of the scenarios

Yeah, Nah

RCP 8.5 - High physical impacts with a planned societal response

Indicator	2040	2090	Indicator	2040	2090
Financial health of the sector	→	↘	Student numbers:		
Government influence on the sector	↗	→	• Total	→	↗
Public support for the sector	↗	→	• Domestic	↘	↗
Innovation and entrepreneurship	↗	↗	• International	↗	↗
Student progression to employment	→	→	• Māori	↗	↗
Location of tertiary learning	H	L	• Pacific Peoples	↗	↗

Key: ↗ Upward/Positive trend ↘ Downward/Negative trend → Trend maintained
C Campus H Hybrid R Remote L Local

2040

Aotearoa is regarded as a safe haven for climate migrants as extreme weather seriously impacts other parts of the world.

There is much greater focus on building resilient infrastructure and planning managed retreat of at-risk communities, including the use of AI for good.

The tertiary education sector becomes a more influential voice in shaping climate adaptation planning for equitable outcomes. Both teaching and research focus much more on climate adaptation, with vocational education being prioritised.

Government funding for tertiary education is constrained, although additional scholarship funding is provided for Māori and Pasifika students.

Mental health of staff and students declines as eco-anxiety becomes more prevalent.

2090

Extreme weather events are causing devastation and large numbers of climate refugees (people who have been forced to leave their homes) arrive in Aotearoa. As migration continues (including climate migration, where people voluntarily choose to move as a result of the effects of climate change), overall student numbers grow.

Aotearoa's cities become much denser, and space is used much more efficiently on tertiary education campuses.

The tertiary sector has become more devolved and integrated with the community. Teaching is done in local communities using applied international research.

Oh Bugger!

RCP 8.5 - High physical impacts with an unplanned societal response

Indicator	2040	2090	Indicator	2040	2090
Financial health of the sector	↘	↘	Student numbers:		
Government influence on the sector	↘	→	• Total	↘	↘
Public support for the sector	↘	→	• Domestic	↘	↘
Innovation and entrepreneurship	↘	↘	• International	↘	↘
Student progression to employment	↘	↗	• Māori	↘	↘
Location of tertiary learning	H	H	• Pacific Peoples	↘	↘

Key: ↗ Upward/Positive trend ↘ Downward/Negative trend → Trend maintained
C Campus H Hybrid R Remote L Local

2040

Extreme weather events are causing infrastructure and food systems to fail, creating challenges for life essentials. As a result, society has become more individualistic, with growing social tensions and inequities.

Tertiary education increasingly is only accessed by the wealthy as fees escalate quickly.

Government funding is drying up and the tertiary education sector is becoming more commercialised. Research funding comes from international corporates and serves offshores interests.

2090

There is wide-spread famine across the world, water shortages and entire nations have had to relocate (including our Pacific neighbours).

Aotearoa's economy is failing, and people are in survival mode.

The tertiary education sector has been privatised and is much smaller, serving only the elite.

The majority who cannot afford the elite institutions can opt for AI education.