

Submitter information

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Questions

Question number	Question text	Where the question appears
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Q1

What are the advantages and disadvantages of administering multiple types of post-compulsory education as a single system?

Page 3

Q2

Do prospective students have good enough information to enable them to make informed choices about providers and courses? What additional information should be provided? Who should provide it?

Page 8

A growing body of research¹ shows that ecologically and socially responsible employers are more attractive to skilled people, and can also influence pre-employment and workplace-based decisions about education and training. Promoting the availability of relevant and genuine content on such matters could make these areas more attractive to learners.

In this submission I set out how I believe that environment and sustainability has a major contribution to make towards delivering “the best possible improvement in the wellbeing of New Zealanders”.

Q3

Is the business model of universities published by Universities New Zealand a good characterisation? Are there aspects of the business model of universities that it does not explain?

Page 11

Aspects of the Universities New Zealand business model of universities not well explained relate to “quality and relevance” and define the external drivers I believe merit inclusion in this discussion.

Section 3 of the Issues Paper states that the “Education Act does not directly specify the purposes of tertiary education”, but notes that the objective of the law relating to tertiary education “provides some indication”. It quotes its objective (as set out in section 159AAA) as being to “foster and develop a tertiary education system” that does six things, of which I single out the following two:

“d) contributes to the sustainable economic and social development of the nation; and

“(e) strengthens New Zealand’s knowledge base and enhances the contribution of New Zealand’s research capabilities to national economic development, innovation, international competitiveness, and the attainment of social and environmental goals ...”

These sub-objectives are absent from the Terms of Reference and hence from the Issues Paper. My submission aims to address this and I trust that it can be considered in full.

The National Science Challenges² address several aspects of sustainability including resource scarcity, biodiversity and environmental degradation. I do not suggest that universities become overly focused on the more vocational aspects of workplace training needs (where in my work, I am observing a growing demand for environment and sustainability training), but there are major implications for academic research and teaching links to policies such as the National Science Challenges need to be explicitly made in any review of the tertiary education sector.

In addition, several external drivers relating to section 159AAA (d) and (e) which I believe the review could usefully consider include:

- **climate** change and the need to **decarbonise** the global economy as per the Paris Agreement as part of the United Nations Framework Convention on Climate Change
- **resource scarcity and degradation**, as identified by TEEB (The Economics of Ecosystems and Biodiversity at www.teebweb.org) and other commentators too numerous to count
- **global risks**, as identified by the World Economic Forum, which lists five environmental risks among the 28 identified in its January 2016 annual report, *Global Risks 2015* (see <http://reports.weforum.org/global-risks-2015/part-1-global-risks-2015/introduction/>)
- **the fiscal multiplier** of investment in sustainable jobs by the public, private and nonprofit sectors. When public money from taxpayers and ratepayers is invested into environmental restoration projects, the literature³ shows that 10.4 to 39.7 green jobs are created for every \$US 1 million invested, compared with the oil and gas industry, which supports approximately 5.3 jobs per \$US 1 million invested. With respect to the effects of investing private money, consider the effects of the December 2011 US “Toxics Law”. This law approved environmental regulations to reduce emissions of mercury, arsenic and other toxic metals in order to prevent up to 11,000 premature deaths each year and deliver many other health benefits, but pre-passage, a lot of people were concerned that the costs to the emitting businesses would “kill jobs”, especially in the recession that was still intense at that time. However when macroeconomist Josh Bivens investigated the employment effects in detail, he found that⁴ far from killing jobs, the “toxics rule” could create over 100,000 jobs in the US by 2015 – in just four years.

Agriculture, forestry, fishing and tourism together generate most of New Zealand’s income⁵ while depending significantly more than other sectors of the economy on a healthy environment and its long term sustainability, so it is easy to identify direct benefits from addressing environment and sustainability issues as part of our tertiary education and training system.

The debate about the costs to tourism from the adverse environmental effects of farming is currently hotting up again, highlighting once more the need for excellent environment and sustainability research, education and training.

Other advantages are the **productivity** benefits of good workplace training of any kind, and of environment and sustainability training in particular. For example:

- a 2% productivity increase nets a 100% return on investment in training⁶
- training by itself was shown to increase productivity by 22.4%, while training combined with coaching increased it by 88%⁷
- introducing environment and sustainability practices in large companies can contribute to a profit increase of 38%⁸
- other studies show that companies in the then Dow Jones Sustainability Index outperformed the general market⁹, and a report from Goldman Sachs¹⁰ found leaders in environmental, social and governance policies are also leading in stock performance by an average of 25%.

This tertiary education review offers considerable scope for delivering on a number of government policies and initiatives: taking a holistic approach would help to “join up the thinking” across many government agencies, and other suggestions are made elsewhere in this submission.

A good example is the Centre for Sustainable Practice at Otago Polytechnic¹¹. Clear policy signals could see this great example spread more widely across the tertiary sector.

There is also an initiative called Sustainability in Tertiary Education in New Zealand¹². Although this may no longer be active (the web page was last updated in 2009), it could still form a useful basis for engagement and dialogue with key players.

I have more information on the productivity benefits of environment and sustainability initiatives and the dollar ROI of environment and sustainability training. Some of this can be seen at <http://www.clarefeeney.com/training/the-business-case-for-environment-and-sustainability-training/>.

Q4

What is the business model of ITPs? Do the business models of ITPs vary significantly? In what ways? **Page 12**

The ITP business model is more focused on workplace needs than that of the universities. Many businesses, especially in high compliance sectors such as vertical and horizontal (civil) construction, manufacturing, farming and other primary sectors like forestry, fishing and mining, have workplace training needs related to environmental management, and are increasingly focused on tasks related to climate change and other aspects of sustainability including resource scarcity and degradation. Some of these needs are being met by training providers but a more comprehensive and strategic approach is needed to enable all sectors to decarbonise and generate the resulting lift in productivity via decreased resource intensity.

In a world where unemployment is a major concern for entire nations and whole generations, it is good news that green jobs can yield 2-8 times more jobs than conventional employment¹³.

Growing numbers of innovative social enterprises are being set up to capture these employment opportunities and the tertiary sector needs to build knowledge and skills to support such work.

Q5

What are the business models of the three wānanga? **Page 12**

While incorporating kaitiakitanga into their work as a vigorous and growing sector of the economy, Maori businesses and nonprofits stand to make significant gains for environment and sustainability. While not a Maori business per se, the Whaingaroa (Raglan) example indicates local employment benefits¹⁴ from local environmental initiatives, as do social enterprises such as Wanaka Wastebusters and their counterparts across the country. Such benefits could be acknowledged in the business models of the three wānanga, as well as those of the ITOs and universities.

Q6	Do the business models of PTEs have common characteristics?	Page 12
Q7	What are the implications of economies of scale in teaching (and the government funding of student numbers) for the delivery of tertiary education in different types of providers and for different types of courses and subjects?	Page 12
Q8	How does competition for student enrolments influence provider behaviour? Over what attributes do providers compete? Do New Zealand providers compete with one another more or less than in other countries?	Page 12
Q9	What are the implications of fixed capital costs for the business of tertiary education? Do differences in the capital structure of different tertiary institutions have important implications for the delivery of tertiary education?	Page 13
Q10	What are the implications of the multiple activities of tertiary education for its delivery? What outputs are best produced together? What outputs are best produced separately?	Page 13
Q11	What are the benefits and disadvantages, in terms of students' learning outcomes, of bundling together research and teaching at universities in New Zealand?	Page 14
Q12	What value is attached to excellence in teaching compared to excellence in research when universities recruit or promote staff?	Page 14
Q13	Do New Zealand TEIs cross-subsidise research with teaching income?	Page 14
Q14	What other evidence is there about what makes for effective teaching in a tertiary environment? Is it different for different types of learning or student? How can teaching effectiveness be best measured and improved?	Page 17

Q15

How do tertiary providers assess, recognise and reward teaching quality in recruitment and career progression? To what extent do tertiary providers support the professional learning of teachers? **Page 19**

Q16

How do New Zealand tertiary providers use student evaluations? How does this influence provider behaviour? **Page 19**

Q17

In what ways and to what extent do employers interact with tertiary providers in New Zealand? Are there practical ways to encourage employers to have greater or more productive involvement in the tertiary education system? **Page 21**

Employers do and can have very influential interactions with tertiary providers, sometimes as a result of field trips and other student research and surveys. One example is a Masters course in Sustainable Production and Consumption Systems developed by Dr Lesley Stone, now the Manager, Sustainability and Environment Office of the Vice-Chancellor and Property Services at Auckland University. One of the students in this course helped a business association which was developing an environmental training initiative for its members. On their behalf she sent out a nation-wide survey of hazardous substances use. One manufacturing company which took part realised it was using a substance that was highly toxic and becoming more and more expensive. It explored the alternatives and started using a non-toxic substitute that was just as effective – and saved itself half a million dollars a year.

More can be done through the business, trade and professional associations that serve regions and sectors, such as Civil Contractors New Zealand, trade unions, IPENZ, Employers and Manufacturers, Chambers of Commerce, concrete, retail, transport sectors and many others.

If it is to be cost-effective, such engagement between business and tertiary providers should take place within an evidence-based strategic approach to priority sectors, targeting those which:

- pose the most risk to the environment and/or to New Zealand's compliance with the Paris Agreement and other commitments such as the Basel Convention on hazardous waste
- offer the most opportunities for innovation (which is known to be spurred by the presence of constraints)
- optimise the benefits to "New Zealand Inc" generally in terms of social, cultural, economic and environmental vitality – in a word, sustainability.

Government initiatives can also encourage training providers to meet businesses' needs for environment and sustainability training. Globally and in New Zealand the best example of this is the erosion and sediment control training programs commonly set up by government environmental agencies. In the New Zealand context, this highly successful model has fed into workplace environment training delivered directly to businesses on a range of other environmental issues related to infrastructure and other sectors of the economy, e.g. training offered by the NZ Institute of Highway Technology through the ITO Connexis. (Refer Target Zero Councils attachment).

Green jobs are so diverse that there's no "one-size-fits-all" standard training package: the environmental skills needed for sustainable forestry are very different from those needed in a manufacturing plant or an office or retail environment. That's why we see sustainability being embedded into existing jobs of all kinds. There is tremendous potential for growth in employment, skills, innovation and productivity across the whole economy.

There is more information on this in my book¹⁵, “How to Change the World: a practical guide to successful environmental training programs” and the associated free supporting resources.

Q18

What are the similarities and differences among ITOs, or between ITOs and other tertiary subsectors, in how they operate? Page 21

Q19

What makes for a successful ITO in terms of meeting the needs of firms for skilled staff? Page 21

Being able to work within a clear policy framework that informs the development of the strategic approach to identifying training needs discussed in Qu 17. This would also help businesses retain their focus on achieving business outcomes (including profitability) while meeting environmental, sustainability and compliance needs.

Q20

How effective is the ITO model in meeting the needs of learners and firms? Page 21

Q21

What arrangements for arranging workplace training and apprenticeships in other countries could New Zealand usefully learn from? Page 21

Those nations already embracing the employment opportunities offered by green jobs (e.g. Scandinavia and Europe, plus others in the world including China), the transition to a low carbon economy and the opportunities to restore people and places that are offered within the restoration economy, as defined by Storm Cunningham¹⁶.

Cunningham says that the restoration of built and natural environments already constitutes a major but overlooked part of global economic activity and will soon account for the vast majority of development. He observes that sustainable economic growth is and increasingly will be based on renewing our natural, built and socio-economic assets, including:

- restoring our natural environments – ecosystem , watersheds, fisheries and farms
- restoring our built environments – brownfield, infrastructure, heritage, places affected by natural or human-induced misfortunes e.g. natural disasters and war.

This work is supported and extended by people such as Richard Louv¹⁷ and Bill Reed¹⁸, and many others working to enhance the quality of our urban as well as rural and “natural” environments¹⁹ and the people who live in and use them.

A better understanding of the fiscal multiplier of such work, whether it is funded by public or private sector money, and appropriate education and training, could see New Zealand as a leading player in this area.

Q22

Is the current architecture a good fit for a tertiary education system? What are its advantages and disadvantages? Are there good alternatives?

Page 24**Q23**

How effective is the TES instrument at giving government education agencies direction about prioritising resources and making trade-offs in carrying out their roles? What are the benefits and risks, in terms of fostering an innovative system, of a more or less directive TES?

Page 24

Government needs to be clear about its policy priorities and direction so that and businesses and tertiary educators and trainers know what's important to the country and make their decisions accordingly.

Clarity about the environment, sustainability and risk drivers we face as a nation and the productivity and other opportunities they offer would allow businesses and tertiary educators and trainers to identify how they can best meet New Zealand's workforce needs in those areas.

Q24

How do other instruments (eg, funding mechanisms, letters of expectation, budget initiatives) influence government agencies' behaviour? How do these align with the TES instrument?

Page 24

As in Qu 23, clear policy drivers about environment, sustainability and risk will influence the decisions and strategies of government and other agencies with respect to knowledge and skills.

For example, carbon accounting can be addressed by schools of business, economics, accounting, mathematics, physics, statistics, engineering, geography, geology and geophysics – as well as industrial psychology and the social sciences, due to the implications for culture change and strategic and operational changes in business.

Carbon is a synthesising indicator for all forms of wasteful use of resources, including time, and thus has a direct link to productivity.

Q25

When do the TEC's independent funding role and its Crown monitoring role align, and when are they in tension?

Page 25

Increasing alignment with environment, sustainability and policy drivers between the TEC and the Crown should reduce tension to a level that stimulates creative dialogue.

Q26**What are the pros and cons of different quality assurance arrangements for universities to those for ITPs, wānanga, and PTEs?****Page 26****Q27****How do New Zealand's government institutional arrangements for tertiary education compare to those in other jurisdictions?****Page 27****Q28****In what ways does a focus on educating international students complement or undermine the other goals of tertiary education providers?****Page 31**

A focus on “green jobs” and associated study and research could position New Zealand as a knowledge leader in this space.

The ILO defines²⁰ green jobs as decent jobs that:

- reduce consumption of energy and raw materials
- limit greenhouse gas emissions
- minimize waste and pollution
- protect and restore ecosystems.

The UN Environment Programme (UNEP)²¹ defines green jobs as “work in agricultural, manufacturing, research and development (R&D), administrative, and service activities that contribute substantially to preserving or restoring environmental quality. Specifically, but not exclusively, this includes jobs that help to protect ecosystems and biodiversity; reduce energy, materials, and water consumption through high-efficiency strategies; de-carbonize the economy; and minimize or altogether avoid generation of all forms of waste and pollution.”

UNEP says that “From a broad conceptual perspective, employment will be affected in at least four ways as the economy is oriented toward greater sustainability:

- “first, in some cases, additional jobs will be created—as in the manufacturing of pollution-control devices added to existing production equipment
- “second, some employment will be substituted—as in shifting from fossil fuels to renewables, or from truck manufacturing to rail car manufacturing, or from landfilling and waste incineration to recycling [and waste avoidance/prevention]
- “third, certain jobs may be eliminated without direct replacement—as when packaging materials are discouraged or banned and their production is discontinued
- “fourth, many existing jobs (especially such as plumbers, electricians, metal workers, and construction workers) will simply be transformed and redefined, as day-to-day skill sets, work methods, and profiles are greened.”

For business, environmental skills are increasingly among the skills in demand. Given increasing concern about matters environmental and economic, this trend is also likely to continue, with “green learning” consuming a larger proportion of corporate social responsibility budgets, and trainers who are knowledgeable about environmental matters and sustainability likely to be in greater demand²².

Q29

What factors best explain the discrepancy between growing levels of tertiary education attainment without a significant productivity dividend?

Page 34

One of these is the lack of understanding about the significant productivity benefits that arise when any agency commits to socially and ecologically sustainable development: skilled staff seek meaning in their work and look for employers who deliver on such outcomes¹.

We may also not be capturing the right data: in my 30+ years of experience in this field, public, private and nonprofit bodies seldom measure what counts and if they do, the data are rarely comparable or comprehensive. For example, companies collect accounting information that does not allow measurement of resource intensity, including waste generation (even for hazardous wastes). Accounting systems that capture such data have been developed but are not yet widely used.

Better indicators of productivity with respect to environment and sustainability are needed, and a strong carbon accounting framework within a context of the six capitals²³ could help to develop such indicators.

Significant work is being done in this area by New Zealand Treasury and Statistics New Zealand²⁴ and this review of the tertiary education sector could usefully consider it as part of its deliberations.

Refer also to the attached Target Zero Business document and “Carbon Quiz”.

Q30

What are the best measures to determine whether the tertiary education system is working well?

Page 36

From the point of view of this submission only:

- increased productivity
- ability to track progress towards achieving government policy outcomes for environment and sustainability.

More widely, happiness statistics such as Genuine Progress Indicators would reveal the wellbeing of people and communities and the nature and direction of links with tertiary education and/or training.

Q31

What other evidence is there about the influence of tertiary education system performance on graduate income premia in New Zealand?

Page 38

Good workplace environment and sustainability training increases skills, pay and opportunities for promotion at all levels – not just of academic and technical graduates.

A digger driver attending one of my environmental training workshops told me that because the environmental protection aspect of his work interested him, he had risen to being the leader of his site environmental management team. Another digger driver became so skilled at environmental work that he is now personally named in tender documents.

I have seen sustainability initiatives in one workplace drive the need for better workplace literacy, which generated higher staff morale, engagement and increased productivity and retention (high staff turnover is a significant drain on workplace productivity).

There are other ways of delivering training and recognising skills than through what may be strictly defined as the tertiary sector. These are often designed to meet sector-specific skills needs. Examples include:

- dedicated training delivered by employers themselves or through government training programs have been a key source of environment and sustainability training
- third party certification systems such as CarboNZero, Environmental Choice, EnviroMark, BioGro and ISO 14001 also play a leading role in building business capability for environment and sustainability initiatives
- systems that recognise current competence (or prior learning) through professional associations, for example Civil Contractors New Zealand's Trade Certification Programme through the Civil Trades Certification Board²⁵
- other environment and sustainability professional associations also have various certification schemes, for example, the New Zealand Association of Resource Management issues a "nationally recognised Certificate of Proficiency, Resource Management" while the environmental Institute of Australia runs a "Certified Environmental Practitioner Scheme"²⁶. Qualifying for these is quite demanding.

The business and personal benefit of CCNZ's Civil Trades Certification are summed up below²⁷:

- "A key requirement for employers is to have a good mentor for the people coming through. In many ways, people skills are just as important as technical skills. We're very lucky with Wayne as he's got it all. He gets great pride out of doing what he does, and from passing his knowledge in to others." Noeline Hodgkins, HEB Investment in People manager
- "One of the biggest problems facing our 'civil' division and the wider civil industry is a shortage of people working at highly skilled and/or supervisory level. Civil Trades will enable us to provide a structured career pathway for new and existing employees, and help us to achieve the growth we need." Derrick Adams, HEB CEO
- "Joe has gone from leaving school with no real direction, to becoming one of New Zealand's Certified Civil Tradespeople. It's been fantastic to watch him grow and develop. As well as the benefits to our business, the personal benefits to him have been huge." Marianne Archer, Goodman Contractors director.

Such initiatives need not be formally brought under the tertiary sector umbrella, but both may benefit from ongoing communication and informal working links with each other.

Q33

What are the significant trends in employer demand for tertiary-educated employees, and in student demand for tertiary education? How is the system responding?

Page 50

A recent survey²⁸ of New Zealand and global CEOs revealed that:

- 46% of New Zealand and global CEOs believed that resource scarcity and climate change were global trends that will transform their business over the next five years
- 40% locally and globally believed rapid urbanisation would do the same.

How well an organisation handles its environmental and social aspects and impacts is an increasingly strong indicator of its overall financial performance and book value, and of its ability to attract and retain the best staff²⁹.

In a 2010 survey³⁰ of corporate CEOs at sustainability's cutting edge and 1500 other CEOs and managers about sustainability, most said their companies had found a compelling business case for sustainability. Among the multiple tangible and intangible benefits they listed were:

- a stronger brand and pricing power
- enhanced stakeholder relations
- cost savings from improved operations, resource use, supply chain and cost efficiencies
- enhanced ability to attract, retain and motivate employees and higher productivity
- product, service, process, business model or market innovation
- improved customer loyalty and lower customer churn, including market-share benefits
- enhanced ability to enter new markets and to identify more potential revenue sources
- reduced risk premiums, reflecting lower balance-sheet and operational risks
- lower cost of capital and greater access to capital, finance and insurance.

Q34

What is being done to develop, assess and certify non-cognitive skills in tertiary education in New Zealand? Do approaches vary across provider types, or between higher, vocational, and foundation education?

Page 51**Q35**

What are the implications of new technologies that are predicted to make many currently valuable skills obsolete? Will this change the role of the tertiary education system?

Page 53

People need jobs more than robots do. Social and gender equality are part of sustainability.

Q36

What challenges and opportunities do demographic changes present for the tertiary education system?

Page 55

Q37

What evidence is there on the effect of tuition fees on student access to, or the demand for, tertiary education in New Zealand?

Page 60

Q38

What are the likely impacts of domestic student fees increasing faster than inflation?

Page 60

Q39

What impact has the pattern of government spending on tertiary education had on the tertiary education provided?

Page 61

Q40

How have providers' input costs and revenue changed over time? What are the implications of these changes?

Page 62

Q41

How might Baumol's cost disease or Bowen's law (discussion of which tends to focus on providers like universities) apply in other parts of the tertiary education system?

Page 64

Q42

What specific technologies should the inquiry investigate? Why?

Page 67

Q43

What parts of the tertiary education system are challenged by ongoing technological change? What parts can exploit the opportunities created?

Page 67

Q44

How has internationalisation affected New Zealand's tertiary education system? What are the ongoing challenges and opportunities from internationalisation of the tertiary education system?

Page 71

Q45

Is the “New Zealand” brand an important part of international competition for students, staff, and education products and services? What should providers and government do to manage or enhance this brand?

Page 71

YES. As indicated in Qu 28, a focus on “green jobs” and associated study and research could position New Zealand as a knowledge leader in sustainable development - but only if we walk the talk, which at present we do not. The 100% Pure New Zealand brand is highly vulnerable.

Q46

What other trends provide challenges and opportunities for the tertiary education system?

Page 71

As indicated in Qus 3, 29 and 30, the challenges below offer significant opportunities to government, business and communities for innovation, employment, productivity and profitability:

- climate change
- the need to decarbonise the global economy
- resource scarcity and degradation
- global risks
- wellbeing indicators (GPI).

Q47

What trends are likely to be most influential for the tertiary education system over the next 20 years?

Page 71

As indicated in Qus 3, 29 and 30, the challenges below offer significant opportunities to government, business and communities for innovation, employment, productivity and profitability:

- climate change
- the need to decarbonise the global economy
- resource scarcity and degradation
- global risks
- wellbeing indicators (GPI).

Q48

Are there other important types of new model that should be included within the scope of this inquiry?

Page 74**Q49**

What new models of tertiary education are being implemented in universities, ITPs, PTEs and wānanga? How successful have they been?

Page 74

Q50**Are current quality assurance and accountability arrangements robust enough to support a wide range of new models?****Page 75****Q51****How might new models of tertiary education affect the New Zealand brand in the international market for tertiary educations, students, education products and services?**

Positively – but only if we truly improve the New Zealand environment by improving our capability for ecosystem governance and and the environment and sustainability performance of the public, private and nonprofit sectors (see answers under Qus 3 and 46).

Q52**What can be learnt from the tertiary education systems of other countries? Are there models that could be usefully applied here?****Page 77****Q53****What measures have been successful in improving access, participation, achievement and outcomes for Māori? What measures have been less successful? Why?****Page 78**

Good on-the-job training training supported by managers as coaches.

Q54**What measures have been successful in improving access, participation, achievement and outcomes for Pasifika? What measures have been less successful? Why?****Page 79**

Good on-the-job training training supported by managers as coaches.

Q55**What measures have been successful in improving access, participation, achievement and outcomes for at-risk youth? What measures have been less successful? Why?****Page 79**

Good on-the-job training training supported by managers as coaches.

Q56

What measures have been successful in improving access, participation, achievement and outcomes for those with limited access to traditional campus-based provision? What measures have been less successful? Why?

Page 79

Good on-the-job training training supported by managers as coaches.

Q57

What measures have been successful in improving access, participation, achievement and outcomes for people with disabilities? What measures have been less successful? Why?

Page 79

Good on-the-job training training supported by managers as coaches.

Q58

What measures have been successful in improving access, participation, achievement and outcomes for adults with low levels of literacy or numeracy? What measures have been less successful? Why?

Page 79

Good on-the-job training training supported by managers as coaches.

Q59

How innovative do you consider the New Zealand tertiary education system is? Do you agree that there is “considerable inertia” in the system compared to other countries? If so, in what way and why?

Page 81**Q60**

What are the factors associated with successful innovation in the tertiary education system?

Page 81**Q61**

What are the benefits to innovators in the tertiary education system? What challenges do they face in capturing these benefits?

Page 81

Q62	What are the barriers to innovation in the tertiary education system? What might happen if those barriers are lowered?	Page 81
Q63	How well do innovations spread in the tertiary education system? What helps or hinders their diffusion?	Page 81
Q64	How successful was the Encouraging and Supporting Innovation fund in promoting innovation in the tertiary sector? What evidence supports your view?	Page 83
Q65	Are there examples where the New Zealand Government has directly purchased innovation or innovative capacity in tertiary education? If so, was it successful?	Page 83
Q66	How easy or hard is it for a new provider or ITO to access TEC funding?	Page 84
Q67	Does the programme or qualification approval process via NZQA or CUAP enable or hinder innovation? Why?	Page 85
Q68	What impact has Performance-Linked Funding had on providers' incentives to innovate?	Page 86
Q69	How much does funding shift between PTEs based on assessments of performance? Whose assessments are they, and what are they based on?	Page 88
Q70	How much does funding shift inside a TEI (eg, between courses, academics, or faculties) based on assessments of performance? Whose assessments are they, and what are they based on?	Page 89

Q71

What influences tertiary providers towards offering a broad or narrow range of course offerings? What are the advantages and disadvantages (for providers, students, and the sector as a whole) of a relatively homogenous system?

Page 89**Q72**

Do New Zealand's tertiary policy and regulatory frameworks enable or hinder innovation? What might happen if existing constraints are loosened?

Page 90

As a general comment about innovation may I quote from a paper recently identified by the Harvard Business Review as the most influential paper of the last 20 years:

How an industry responds to environmental problems may be a leading indicator in its overall competitiveness ... Only those companies that innovate successfully will win. A truly competitive industry is more likely to take up a new standard as a challenge and respond to it with innovation.

Michael Porter & Claas van der Linde, Harvard Business Review, 1995

All my experience over the last 30 years confirms this prediction, as does later research cited in this submission.

Q73

How do intellectual property protections in tertiary education foster or hinder innovation? Are the effects different in different parts of the system or for different kinds of provider?

Page 91**Q74**

How does the Crown's approach to its ownership role affect TEI behaviour? Is it conducive to innovation?

Page 92**Q75**

Do regulatory or funding settings encourage or discourage providers from engaging in joint ventures? If so, how?

Page 93**Q76**

How do regulatory or funding settings encourage or discourage providers from seeking external investment?

Page 93

Q77

How do tertiary providers create incentives for internal participants to innovate? What kinds of choices by providers have the biggest “downstream effects” on their level of innovation?

Page 93

Q78

What incentives do government education agencies have to innovate in the way they carry out their functions, both within and across agencies? What constraints do they face?

Page 94

References

¹ See, for example, PWC (2014) 17th Annual Global CEO survey: transforming Talent Strategy.

Key findings for New Zealand.

- 2 Refer <http://www.mbie.govt.nz/info-services/science-innovation/national-science-challenges>
- 3 Todd K. BenDor, T. William Lester, Avery Livengood, Adam Davis and Logan Yonavjak (2013) Exploring and Understanding the Restoration Economy. Downloadable from <https://curs.unc.edu/files/2014/01/RestorationEconomy.pdf>. See also Yonavjak, Logan (2014). Now THIS Is What We Call Green Jobs: The Restoration Industry 'Restores' The Environment And The Economy. An article at <http://www.forbes.com/sites/ashoka/2014/01/08/now-this-is-what-we-call-green-jobs-the-restoration-industry-restores-the-environment-and-the-economy/>.
- 4 Bivens, J. (2012) The 'Toxics Rule' and jobs – the job-creation potential of the EPA's new rule on toxic power-plant emissions. Issue Brief #325 of the Economic Policy Institute, a non-partisan think tank in Washington DC, February 17 2012. Downloadable from <http://bit.ly/126jvXv> or <http://www.epi.org/publication/ib325-epa-toxics-rule-job-creation/>. Accessed March 2013.
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- 17 Richard Louv has written several books of which two relate directly to human and environmental health and the opportunities for the restoration economy: Last Child in the Woods: Saving our Children from Nature Deficit Disorder and The Nature Principle: Human restoration and the end of nature deficit disorder. There are discussions and interviews with Louv and others from a November 2014 forum in Whanganui called [A Place to Live : for the life worth having](#) and also at

<http://www.radionz.co.nz/national/programmes/a-life-worth-having/audio/20163909/the-nature-principle-panel-discussion>.

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