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Social Impact Assessment

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Challenges for Social Impact Assessment in New Zealand: looking backwards and looking forwards

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In this article we introduce Issue 8 of Impact Connector, which focuses on the practice of social impact assessment (SIA) in Aotearoa New Zealand. Across the articles in this issue we consider some of the challenges facing SIA in this country. We asked the writers of these articles to look backwards to previous practice and also to look forward to where they see SIA going in future practice, especially where SIA might well be applied to societal challenges in future iterations of practice.

SIA emerged in New Zealand in the 1970s as an applied field in the social sciences (*Taylor and Mackay, 2016a*), with the origins often tied to the emergence of environmental impact assessment in countries such as the United States and Canada (Burdge, 2004). The field is now well established internationally with international guidelines developed and published by the IAIA (*Vanclay, et al. 2015*). Social impacts are now widely acknowledged as a key part of safeguards policies in international development assistance and in sustainable development, as in the UN Sustainable Development Goals.

SIA has a long history in this country, as we have discussed previously in an overview of the history of SIA in Aotearoa New Zealand (*Taylor and Mackay, 2016a*). Our practitioners have contributed widely to the development of a common approach to SIA, including to texts, training and guidance documents both in this country and internationally.

In the early era of major energy projects described in the first article in this issue, by **Ann Pomeroy**, an SIA Working Group instigated and wrote our first SIA guidelines document: *Social Impact Assessment in New Zealand: a practical approach* published by the Town and Country Planning Directorate of the Ministry of Works and Development. The interesting aspect of these guidelines is their move from considering *future* impacts to a framework and approach for managing current social impacts through a participatory, community-based approach.

In her article, **Ann Pomeroy** also talks about the subsequent, transformative era of state-sector restructuring and the limited application then of the methods and skills developed by

SIA practitioners in the preceding period when the focus of SIA was on the impacts of major projects. To some extent the subsequent period of intense, neo-liberal regulatory reforms that followed “Think Big” caught SIA practitioners on the hop. The lesson then was to ensure that the SIA approach, including the process and methods used, had the flexibility to adapt to different eras of national policy. Plus the transformative changes in society, for example structural ageing or technological disruptions.

At the lower level of project planning and resource consent applications under the Resource Management Act 1991 (RMA), SIA has, in our view, become somewhat formulaic. The approach taken to social impacts is often limited in the conception of the social environment used and therefore in the scope of the effects under consideration. For instance, effects such as noise, dust or traffic, as evident in many construction projects, are not often followed through to their social consequences, including the effects on amenity values, human health and standard of living. This gap calls for a more integrated approach.

Gillian Stewart and **Lynette Wharerau** address this problem and propose in their article a conceptual framework of multiple capitals for impact assessment. Their integrating framework looks to move from a “linear” approach to a “co-dependent model” in order to analyse and evaluate the balance of impacts on community wellbeing, including positive, negative, anticipated and unforeseen effects on the lives of locals and the places they live.

In our experience, the most effective approaches that integrate SIA into assessment focused on community outcomes and wellbeing are found at the strategic level, as part of strategic environmental assessment or SEA (*Taylor and Mackay, 2016b*). At the higher, strategic level, SIA is applied in Aotearoa New Zealand to planning under the auspices of local and regional government. Examples include urban planning, transport planning and, especially over recent years, land and water planning. The use of SIA in Regulatory Impact Statements by central government is relatively undeveloped.

Social impacts experienced by rural areas remain an important part of SIA in this country. For instance, there is considerable analysis of the social impacts of land-use change (*Taylor, 2019*). **David Simmons** provides a summary of his research into mobile populations in rural areas. The research found that populations are increasingly mobile. He provides a framework for categorising the nature of this mobility. His framework could be applied to SIA focused on sectors such as tourism, infrastructure construction, horticulture and dairy farming, where there are high levels of workforce mobility and movements of visitors and other people. The framework proposes that mobile or ‘transient’ populations are usefully understood by using a continuum of the length of time they are present in a community. Each group is then described by social-demographic factors and vulnerabilities. The research has provided a guideline document that should be useful to SIA practitioners working with communities affected by change.

In their paper assessing the impacts of a new cycle trail in the Waitaki District, **Mike Mackay** and **Nick Taylor** consider the need for social impact assessment that focuses on sustainability outcomes of tourist trails across multiple dimensions, and in an integrated manner, to better inform the planning, implementation and management of trails and of tourism more generally in rural regions. Their assessment found that the Alps to Ocean trail is helping to diversify and revitalise the District’s economy and small towns along the way, while introducing a new type of visitor mobility to the affected areas, along with increased employment activity in the highly mobile hospitality sector.

In putting this issue of Impact Connector together, we asked contributors to consider new thinking in the field of SIA as part of their articles. There is increasing public concern about disruptive technologies and impacts of change remain a concern in cities, regions and communities. SIA has always had a practical interest in effects experienced by people and communities and how they can be avoided, managed, or enhanced.

As an example, **Nick Taylor** looks at transformational changes in relation to the management of biodiversity in Aotearoa New Zealand and the development of a [National Biodiversity Strategy and Action Plan](#) as well as national programmes such as Predator Free New Zealand (PFNZ). Protection and enhancement of biodiversity are major societal challenges. He notes there is a history of applying SIA, and social science more generally, to conservation management and provides an example with a case study of the SIA for a programme working towards Predator Free Rakiura. The interest in this SIA was on the potential effects on population, employment, livelihood, visitor numbers and behaviour, and the island way of life. To ramp up this sort of effort will require SIA practitioners to find ways to work alongside ecologists and conservation managers, to integrate approaches to human-ecological systems, and to work with affected communities and stakeholders.

Programmes to control or eradicate invasive species, to strengthen freshwater management with a revised national policy statement on Freshwater Management, to support regeneration of native forests for carbon sequestration, or to implement the Billion Trees Programme, are all potentially transformational in terms of their social outcomes. SIA can help to design and implement these transformational strategies and the projects that follow them.

In another area of transformational change, transport systems, **Helen Fitt** looks at the future of transport modes and potential social disruptions. She invokes the Jetsons to get us thinking about the social impacts we should consider. Looking back, Helen notes that the unanticipated effects of transport policies and decisions are now well known. Yet we still build motorways in New Zealand without fully recognising the potential effects on urban form, especially urban sprawl. She also notes the perverse impact of induced demand, whereby reduced congestion from a new road induces increased demand and then, yes, more congestion. SIA can help to understand these sorts of dilemmas and find solutions to them.

We face many challenges at the higher level of national policy development as **Ann Pomeroy** points out looking back at previous transformations. Current national developments include climate change policies such as encouragements to use electric vehicles, planting of trees for carbon capture, freshwater management and changes in urban design and planning. With their longstanding interest in rural communities in Aotearoa New Zealand, perhaps some of the most far-reaching transformations that SIA practitioners will need to turn their attention to here are in the primary production and processing sectors. These changes include transitions to more sustainable, carbon-neutral production systems. Innovation remains fundamental to these production systems and the “Agri-tech” sector faces innovations in bio-technology, digital technology, robotics, marketing systems and the like, which have the potential for significant social impacts, on people and communities through the work that they do and the places that they live in (*Downs and Wojasz, 2019*). As Bond and Dusik (2019) point out, impact assessment in general needs to rise to the challenges raised by the need to assess the impacts of technological changes.

This issue of Impact Connector reflects the practical focus of many SIAs on rural areas and the regions. The sorts of transitions that the rural productive sectors are now facing will require innovative thinking by SIA practitioners around issues such as the cumulative effects of multiple drivers of change. Other challenges are the increasing complex linkages between producers and consumers, and between rural and urban areas. These challenges will require SIA to move into areas such as foresight and futures assessment. Long-standing foci of livelihoods, work environments, skills and training, housing for workers and social equity will remain important but the frameworks for understanding social change will need to advance considerably. Public involvement will also remain a feature of our work but the nature of informed debate with communities is also likely to transform as new tools are advanced, such as digitised scenario games.

Finally, in this introduction to the SIA Issue of Impact Connector, a particular issue we want to note is the important relationship between SIA and applied social research and, where possible, meta-analysis that draws out the nature of social impacts and consequential changes in social life, social systems and social-economic status, or disadvantage. Where this research is made available from academia or crown research institutes, it is an invaluable resource for baseline analysis, understanding of social change and, most importantly, for understanding the complexities of human-environmental relationships. It is of interest that several of the writers in this issue (Pomeroy, Simmons, Mackay and Taylor) have drawn on research undertaken as part of National Science Challenges. Similarly, we note speakers at recent NZAIA conferences have drawn on their research in these Science Challenges to develop presentations relevant to IA practitioners. These links between applied research and impact assessment require active fostering by NZAIA.

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Insights from the eighties: early Social Impact Assessment reports on rural community dynamics

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Introduction

The value of social impact assessments (SIA) is that they usefully document the state of a place and its communities at times before and after specific events have wrought change on that place and its people. Such assessments may also provide planners, policy analysts and politicians with insights into how places and their communities are likely to change should major developments or new policies occur. Where accurate and careful assessments are undertaken, action can be taken in advance to mitigate negative effects and enable communities to take advantage of potential benefits. The early history of SIA in New Zealand would suggest that many SIAs (other than supervised academic research) were under-resourced and rushed and/or findings were put in the political 'too-hard/hot potato' basket and ignored. Consequently, the value of the initial flush of SIA work in rural New Zealand during the 1980s was not recognised and SIA as a discipline in its own right did not gain sufficient traction to be at the forefront of planning and decision making.

Early days of SIA

Possibly the earliest SIA studies in New Zealand were university-based thesis work: Ann Gillies' 1977 Masters thesis investigated the likely value of irrigation to a stock farming (downlands) community neighbouring the lower Waitaki Valley, and Susan Maturin's 1981 Master thesis on the prospects of the town of Hari Hari (Westland) following the demise of the local timber industry, which she later wrote up for the Commission for the Environment (Maturin, 1983). The former plotted population, service and employment changes that were attributed to irrigation development in the lower Waitaki valley, and compared them to the social situation and outlook predicted for the non-irrigated neighbouring, drought-prone lands [\[1\]](#). Maturin used her study of Hari Hari to explore the concept of SIA for planning purposes and its value in improving quality of rural community life. She reviewed the options available to all interested parties affected by the environmental, social and economic impacts of different approaches to the management of the West Coast's sawmilling industry.

Maturin's thesis included a history of the Hari Hari community, an analysis of population, employment, business and service trends, a description of the structure and characteristics of the community, a review of community needs based on data collected from 82 interviews

(17 percent of the community), plus an assessment of the effects of the local sawmill closure on the community, and possible alternative employment opportunities. It was of particular interest because the analysis took place just a few years prior to the mid-80s, neoliberal restructuring that resulted in privatisation of key government agencies on the Coast (particularly of the NZ Forest Service) and subsequent major redundancies and unemployment. With a population of just over 600 people in 1981, the bulk of male employment in Hari Hari was in farming, sawmilling and in the NZ Forest Service. While both men and women were engaged in farm work, Maturin noted that in the other sectors (forestry and government) it was a male dominated society with very few real occupations for women. Apart from those who were teachers, most women worked because they needed the money and something to do. "Work is as important for them as it is for the men. However, in general the women are less satisfied with their jobs than the men" (Maturin, 1981:125). Changing attitudes to the conservation of native timbers signalled the end of indigenous timber milling [2]. The district was expected to continue to lose people, and it did.

SIA takes off

Possibly the first published work in SIA was Tom Fookes' (1981) analysis of the potential impacts of the construction of the Huntly Power Station on Huntly and its surrounding community, including the Waahi marae. While nominally an analysis of environmental impacts, Fookes included a partial exploration of social and cultural impacts. Fookes' work was followed by an SIA analysis taken from a Māori perspective by the Centre for Māori Studies and Research (CMSR) at Waikato University, published in 1984. Both pieces of work were funded by the Ministry of Energy. The project brief stipulated that the CMSR study was to outline the reasons for a Māori perspective, and justification for it. The report was to provide an account of Tainui arrival and occupation of the Waikato, contact and conflict with Pākehā, land confiscations and their effects, and the concerns of the Tainui people for the Waikato river. The CMSR report also documented the present position of Tainui, their aspirations and issues arising from the proposed power station site and expanded coal-mining activity. The report argued that given Māori made up a fifth of the region's population they should receive a fifth of the benefits of the power stations, and that to overcome underdevelopment: "Tainui needed better education, vocational training and restoration of their community life. The low standard of educational achievement was seen as a direct result of inequality of opportunity in education and mono-cultural policies" (CMSR 1984: v). Although the government ignored the CMSR's recommendations it was agreed that Ngāti Mahuta should be compensated for the impact of the project on their traditional way of life. Compensation would be in the form of a major upgrade to Waahi marae, along with new housing, community, and recreation facilities (Whittle, 2013).

Other early social impact work included Ruth Houghton's study of the farming communities in the lower Waitaki River delta funded by the UNESCO Man and the Biosphere programme for the Ministry of Works [3] (Houghton, 1980); Melser, Lloyd, Moore and Levett's study for the Ministry of Works of the closure of the Patea freezing works in 1982; and an independent study by Yvonne Landon (1982) on the impacts of the methanol plants' construction in Taranaki.

Houghton's study aimed to provide information about New Zealand's rural population in general and the relationship of local residents to the Lower Waitaki River delta (in view of possible further hydro-electric power generation and irrigation development) as background on possible social impacts of resource development on the local communities.

The study by Melser *et al* (1982) identified the likely outcomes facing the Patea community and its residents from the loss of the town's major employer. Despite being identified as the

most disadvantaged (since they made up almost 70 percent of the freezing works' workforce), Māori concerns were largely ignored. The study suffered from a lack of Māori research input and the focus was on middle-class Pākehā males. The outcomes of hui at the six local marae were not covered. Melser *et al's* study assumed that because most of Patea's retail businesses and its service sector were predominantly dependent on the farming community they would be relatively unaffected by the freezing works' closure. However, Peck's (1985) study for the Ministry of Works found that lost investment and business confidence had had a ripple 'spill-over' effect on the rest of the community affecting retail, transport, facilities, amenities and infrastructure - the latter particularly impacted by decreased property values which had led to a diminished rating base (Peck, 1985: 12-13). The closure had also accelerated the migration of younger people from the town. Government job creation schemes (Project Employment Programmes: PEP) of the time were short-lived, failed to provide permanent jobs for 79 percent of participants, and sometimes cut across engagement by people in other ventures.

In the same period Yvonne Landon (1982) studied the socio-economic changes in North Taranaki from the development of two synthetic methanol plants at Motunui near Waitara in north Taranaki. She concluded that the most critical and often repeated issue was the lack of forward planning, and lack of co-ordination and communication between developers, local and central government and the community which was experiencing negative impacts on service provision. Locals who had spent considerable time on submissions and attending hearings felt their efforts had been a costly waste. Issues included:

- housing (people were living in cars, garages and caravans, and landlords were evicting tenants to get higher rents from construction workers)
- education services (likely closure of a school due to the plant being sited next door, lack of capacity in areas where transient workers' families were being housed, particularly lack of pre-school and child-care places)
- employment (there was a mismatch between the skills required of the new workforce and the unemployed, and while training programmes were introduced these were likely to be too late to be useful, and local firms were losing their skilled staff to the higher paying development projects)
- environmental degradation and health issues (shellfish contamination and other health issues from uncontrolled effluent discharges, the local boroughs and council unable to manage the problems arising from a fast-tracked 'Think Big' development)
- lack of infrastructure (including strain on roads and communications from the rapid build-up of construction traffic).

The report profiled the age, ethnicity, occupation, and industry structure/engagement of each affected community and identified the key issues expressed by locals about the development.

From the early to mid-1980s, Nick Taylor [\[4\]](#) and colleagues at the Centre for Resource Management at Canterbury University, and Lincoln University, then with Foundation for Research Science and Technology funding through Taylor Baines and Associates, began documenting the impact of economic change in a number of rural communities. They paid particular attention to the impact of major resource developments (including the 1980s 'Think Big' projects) on rural populations and concluded that while development (such as electricity generation, petrochemicals and metal processing) could bring economic growth locally (and this had regional and national benefit), local benefits tended to be short-lived. Once projects finished, the local community was often faced with a range of social, economic, and environmental problems, especially in the wind-down phase.

Taylor and McClintock looked at settlements and communities directly involved in the first stages of exploitation of natural resources, noting that such development was often characterised by rapid population growth, “the establishment of either totally new settlements, or the expansion of existing towns. In both cases there is an abrupt change in the physical landscape, a rapid increase in employment, disruptions to the existing rural economy, and an increased demand for public and private infrastructure” (Taylor and McClintock, 1984: 378). The consequent social problems, fiscal pressures and disrupted housing markets lowered the quality of life and led to high labour turnover, low productivity and financial problems (Taylor and McClintock, 1984). While arguing for social impacts of development to be analysed at a regional level Taylor and McClintock put forward a strong case for recognising the consequences of social and economic change on communities, particularly impacts on the working class, women and indigenous people (Taylor and McClintock, 1984). The study became the precursor and framework for more in-depth analysis of the social impacts of development and research on the boom and decline of rural areas which the authors (and others) carried out over the following decades.

SIA becomes official - but not for long

In mid-1986 a Social Impact Unit was established within the State Services Commission. The Unit was tasked to research and minimise the negative aspects of widespread job losses expected (especially in rural areas) to arise from state sector restructuring. Privatisation saw 5000 state servants shifted to state corporations (such as Electricorp, NZ Post, and Tranzrail) on 1 April 1987 and a further 5000 staff, chiefly in the new Forest Corporation and Coal Corporation entities, were made redundant (SSC 2013). The Unit had 15 regional committees which were established to undertake social impact assessments and related activities, but with time short, assessments were rushed and of limited assistance in fashioning government policy (Boston, 1987). The Unit and other entities compiled a range of social impact assessments and reviews for several main urban areas and for rural communities, predominantly the East Coast Region, Northland, Waikato (Huntly and Te Kuiti), Tutira (north Hawke’s Bay), West Coast, North Otago and Southland between December 1986 and February 1987. These were not focused on local single industry impacts but on a diverse range of impacts introducing change at the regional and national levels. The regional committee reports make for sad reading. Staff were overwhelmed with the magnitude of the problems of mass unemployment in places with limited or no job opportunities. There were also too few staff to cope with the numbers of clients, and most officials lacked enterprise development experience. In 1989, the Social Impact Unit was closed (SSC, 2013).

Calls for SIA-centred public policy

Meanwhile Nick Taylor and others continued their work on SIA and rural research, querying the lack of rural social research, particularly research analysing the processes and underlying causes of change. They were particularly critical of the dearth of public policy on SIA in light of the major changes taking place in rural communities, such as the relocation of rural employment and population, institutional reform, and “new strategies for economic growth which emphasise the use of local resources and entrepreneurship” (Taylor *et al*, 1987: 1). Their analysis led to them reinforcing proposals to review social development alongside the development of natural resources, and for a national social policy and, at the very least, on-going social monitoring of specific policy changes or developments in rural areas (Taylor, 1986). Such analysis was needed to reflect changes in the socio-economic composition of rural New Zealand, particularly as a consequence of tourism.

In the early-1990s the newly-fledged Society for Social Assessment approached the government to undertake social assessment as a regular part of policy analysis. The

proposal was ignored. This was particularly problematic for rural areas which had changed significantly. Over 50 percent of the rural population was engaged in activities other than primary industry, but with a limited social policy function [5], a lack of rural social research, and with policy and delivery functions in government split apart, policymakers were increasingly out of touch with the sectors and groups for whom their policies were designed (Webber and Rivers, 1992; Wheatstone, 1994). Despite a Rural Affairs/Rural Resources Unit being established in the Ministry of Agriculture in 1991, then its closure with a change of government in 1998, then re-establishment of a Rural Communities Portfolio within the Ministry of Primary Industries in 2017, these units were narrowly focused on farm communities with little or no recognition given to the broader components of rural areas.

The needs for an understanding of the social impacts of resource developments, of major policy shifts currently taking place and affecting rural New Zealand, and of the social inequality endemic in New Zealand's rural areas (Pomeroy, 2019), are still not being addressed fully through the approach and insights provided by SIA

Note: This article is based on research prepared for the fifth report in the Bishop's Action Foundation series on rural New Zealand. Report 5: *Summary of Research on Rural New Zealand from a Social Perspective* was part funded by the Ministry of Business, Innovation and Employment and is part of the suite of projects in the National Science Challenge Series: *Building better homes, towns and cities* managed by the Building Research Association of New Zealand (BRANZ).

[1] The downlands irrigation development scheme did not go ahead immediately. A study of the area undertaken a decade later (satisfyingly for the author) showed predicted population, employment and service growth were starting to occur on the irrigated plains versus the downlands (without irrigation) with continued population and service loss.

[2] Following the signing of the West Coast Accord in 1986 indigenous tree felling on the West Coast was slowed, then following further legislation in 2000, halted.

[3] The role of the Ministry of Works at that time included measuring impacts of development proposals on communities, coordinating co-agency discussion, and identifying communities at risk of economic decline (Bennett, 1980).

[4] Nick Taylor with Hobson Bryan and Colin Goodrich authored the seminal texts on SIA in New Zealand.

[5] The Social Policy Agency established in 1992 under the umbrella of the Department of Social Welfare had a narrow welfare focus. The stand-alone Ministry of Social Policy was equally narrow. Established in October 1999, it had a three-year life span, being merged into Social Development in October 2001.

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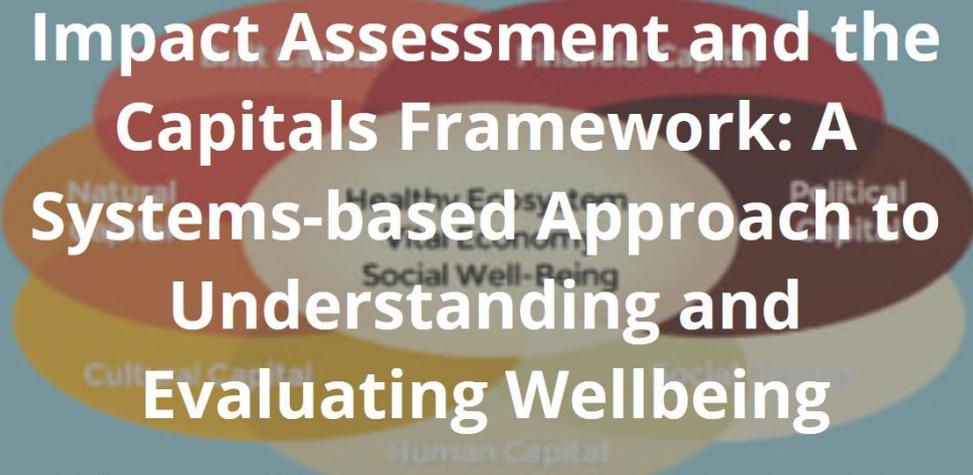
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Impact Assessment and the Capitals Framework: A Systems-based Approach to Understanding and Evaluating Wellbeing



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This article reflects a work in progress and the authors' personal and professional developmental journeys – an interwoven approach of both Māori and Pākehā perspectives, knowledge and practice. Here, we summarise our theoretical and practical work toward understanding and improving the sustainable development and wellbeing of people and planet that is based on a merging of impact assessment and the conceptual world of capitals. It is an introduction to what we call 'tika impact' – a systems-based approach to understanding and evaluating well-being (the transitioning from mauri to mana) whereby people and organisations can comprehend, access, leverage and regenerate the assets and resources required to invest in making an impact on change.

Assessing the true (tika) impacts of decisions and actions – whether in the design or delivery of policy, projects, programmes, products, goods and services, as well as our relationships to one another and the biodiversity in nature – requires us to take a holistic, systems-based view of our world. It requires an analytical framework that represents this interconnected, complex world and the reality of the interdependencies between our environmental, cultural, human, social, financial, manufactured/ built and political capitals. It is these 'capitals' as assets and resources, held individually or collectively as families, organisations, communities, regions, nations or at a global scale that provide the foundations of wellbeing and sustainable development. Our access to them and how they are used, leveraged or invested, as well as nurtured and regenerated (to whatever purpose) is not only cyclical but also a balancing act akin to the functioning of an ecosystem.

The concept of capitals is not new. It has a long history and emerged as an economic term used to describe a stock of anything (physical or virtual) from which anyone can extract a revenue or yield. Conventional understanding of capital has developed to include financial and manufactured (man-made) capitals, and since the 1990s has incorporated natural or environmental capital [1], and human capital (derived from organisational and managerial discourse [2]) and social capital [3]. The New Zealand Government's 'Living Standards Framework' (LSF) and 'Wellbeing Budget' [4] have adopted this international dialogue on sustainable development that Ekins [5] originally combined into the 'Four Capital Model' (1992) for wealth creation (revisited by the World Bank in 1994) [6].

This capital theory is based in economics and regards the four capitals as measurable

through sustainability indicators that represent their own distinct units and could supplement GDP in national accounts. In this manner, national wealth and progress toward sustainability and, thereby wellbeing, could be then harmonised under internationally used measurements, compared across periods and published in accounting records besides GDP. Correspondingly, the LSF's four capitals model is described by Treasury as a means to "organise indicators of sustainable intergenerational wellbeing" and a measurement tool that "emphasises the diversity of outcomes meaningful for New Zealanders, and helps the Treasury to analyse, measure and compare those outcomes through a wide and evolving set of indicators" [7].

There is a second, lesser known discourse based in community economic development theory regarding this idea of a hybrid model of capitals that posits there are seven, not four capitals. These are framed as natural, human, cultural, social, built, financial, political capital. Undoubtedly influenced by international development dialogues, as well as discussions of cultural [8] and political [9] capitals in sociological and political theory, they come from a more sociological lens to describe and measure sustainable development at the micro, community level. Since the early 2000s this concept of the 'Community Capitals Framework' (CCF) has emerged from the work of Iowa-based academics Flora, Flora and Fey [10] who were researching ways to reverse patterns of neglect and disinvestments in indigenous communities of the American Great Plains.

The CCF shifts the focus to asset-based development rather than deficits, problems and 'wicked-issues'; access and use of resources as a means of making a living and giving meaning to life; and found that the flow of assets across capitals in a community – natural, human, cultural, social, built, financial, political – acted like an ecosystem that can initiate an ongoing process of assets building on assets, leading to the effect of success building on success. The CCF reflects a concept of well-being where access to, utilisation and growth of these interconnected resources enabled communities of individuals with capability, capacity, choice and power to act to deal with their day-to-day and ongoing challenges and aspirations for socio-economic improvement.

Whilst evolving from different fields of study the one thing these capital dialogues have in common is their representation of different economies or systems of human behaviour and relationships to one another and to the planet we exist within. Simply stated the concept of capitals helps provide a framework to understand and explain the foundations of wellbeing – that is the interconnection and interdependence between human, societal and environmental wellbeing and sustainable development as a state of balanced regeneration (rather than trade-offs and short-term, lineal thinking). As Porritt (2005) sees it,

"Capital is a stock of anything that has the capacity to generate a flow of benefits that are valued by humans. It is this flow – normally of goods and services of benefit to people – that makes the capital stock an asset, and the value of the asset is derived directly from the lifetime value of the flows to which it gives rise... The concept of capital serves not only to explain the productive power of capitalism; it also provides the clearest means of explaining the conditions for its sustainability" [11]

Porritt's organisation Forum for the Future states,

Sustainability depends on maintaining and, where possible, increasing stocks of certain kinds of capital so that we learn to live off the flows without depleting the stock of capital itself; if consumption is at the expense of investment, or results in net capital depletion so that the capital stock declines, then such consumption is not sustainable and will be reduced in the future"

The small, but steady flow of research looking at these seven community capitals may seem

inconsequential in light of international development dialogues. However, they have probably done more to illuminate the fact that sustainable development is both an individual and a collective behaviour of accessing and using and growing (or depleting) their capital assets – by people, families, organisations, communities, regions and nations - rather than something managed or engineered by institutional interventions alone.

Much could be gained by applying the work done in the community capitals space to the New Zealand government's developing and evolving LSF framework. We consider that the seven capitals model is more inclusive and speaks not only to our diversity but is more human-centred than a model rooted in economics. Here in New Zealand, cultural capital is an essential foundation of our nationhood, the story of our social, environmental, political and economic development to this point and into the future. The CCF model also incorporates political capital [\[12\]](#), which includes notions of empowerment and ability to access, exchange and shape public resources and the rules and regulations that affect its day to day functioning.

By focusing primarily on things we can measure, we fail to see the full and tika/true picture of how all of the capitals function holistically together - where an impact in one area caused by levels and types of access and use will effect change in other areas. If we are not focussed on the full nature of capitals, we are also in danger of missing the opportunity to understand and support wellbeing as a series of actions, transactions and interactions that can either grow or deplete, share or restrict, manage or regenerate our capitals for private or collective benefit.

As an approach (or process), Tika Impact responds to an over reliance on measuring and counting our lineal progress toward indices of wellbeing outcomes. It suggests that we should instead see these outcomes in a system of interconnected and interdependent capitals and look to assess, monitor and adapt the impacts of our decisions and actions on our access, use and regeneration of all these capitals as the foundation of wellbeing – how we utilise and leverage our stocks of mauri to transition toward and maintain a state of mana. Such an approach would better recognise and provide for Indigenous interests, a fundamental obligation within sustainable development and wellbeing approaches.

Moreover, why should not all organisations, agencies and businesses in NZ (public, private and voluntary sectors) be integrated into a wellbeing measurement system, so that everyone can coordinate their contribution and impact on the nation's capitals, potentially demonstrating positive impacts at individual, whanau, hapu, kāinga, organisation, community, sector, region, national and international levels?

Impact Assessment (IA) as an applied process of the international community of Environmental Impact Assessment (EIA) offers a means to understand 'impact' upon the system of capitals. EIA's focus upon impact as an effect, rather than a broad, long term outcome helps us to focus upon the cyclical and complex nature of the consequences of our behaviours, decisions and actions. IA helps us to better predict, assess, manage, monitor and re-assess the potential, actual and cumulative impacts that occur across the framework of capitals over time. IA helps us understand and identify why we do what we do, how we go about it, what we do (or don't do), who or what it effects, when and where.

Setting outcomes and objectives are fine for determining the purpose, scope, scale, intent, objectives and the corresponding inputs, outputs and tasks associated with project, policy or programme design and delivery. However, what might happen, what could be prevented or enhanced and what does happen to whom, what, where, when and how, are our concerns as impact assessors. Impact is essentially what shapes our journey through life, confronting us with challenges and opportunities we can control in the best way possible so as not to do

harm to ourselves, others and the environment we depend on to exist.

We contend that impact is the intentional or unintentional, positive or negative effects we experience ourselves, or that we cause for others and the environment in which we live. Impact is not an outcome, a result or an end-state we progress lineally toward. It is a transaction - something that happens that influences our reality, informs our behaviour and shapes our onward journey. By assessing and measuring our true impact we are looking at the things that could or do happen and how they will be received by the world around us. Our goal should be to revolutionise traditional approaches to policy, project, programme or product and service design, delivery, monitoring and evaluation so we become more conscious, creative and connected citizens, learning to use our individual and collective assets and resources regeneratively and in ways that make the best impact on the world we share.

As impact assessors, we deal with the impact and effects (positive and negative, intended and unintended) of utilising capital – whether environmental, cultural, human, social, financial, physical and political - upon the state of balance of the system of capitals, such as the integrity of biodiversity or climate, people and communities' cultures, connections and ways of life, voices and choices, health and safety, their possessions, economy and rights. In doing so, we tend to seek collaboration among the technical disciplines to form a holistic and integrated picture of impact. Impact assessors are increasingly talking about Strategic Environmental Assessment (SEA) [13] as a procedural means to look at this big, strategic picture of impacts and effects on the processes of sustainable development.

The idea of merging capitals and impact assessment we consider is worth researching further. Such a merger enables a co-dependent model that helps to reframe, analyse and evaluate the balance of wellbeing. The objective is not to create scores or indices of wellbeing, but rather to establish a systems-based approach to understanding and evaluating impacts on the assets, resources and mauri we use to sustain and regenerate mana and wellbeing.

Notes and References

[1] Natural or environmental capital, although somewhat reductionist, is all that is required to maintain a functioning biosphere, supply resources to people and dispose of their wastes. In the environmental sciences it represents several categories of resources – renewable and non-renewable, sinks and services. Natural or environmental capital is the basis of cultural, human, social, manufactured, financial and political capital. It is irreplaceable and cannot be substituted by any of these other capitals. It is the foundation of life.

[2] Lawler E, Bourdreau J. 'What makes HR a strategic partner? Effective Organizations. 2007p.0–23. Report no.: CEO09-01(555). Available from: (<http://ceo-marshall.usc.edu>).

[3] Robert Putnam, "The Prosperous Community. Social Capital and Public Life," *The American Prospect* 13 (1993): 35-42.

[4] <https://treasury.govt.nz/information-and-services/nz-economy/living-standards/our-living-standards-framework>; <https://treasury.govt.nz/publications/wellbeing-budget/wellbeing-budget-2019-html#reference-index-2>

[5] Ekins P. "The four capital model for wealth creation". In Ekins P, Max-Neef M, editors. *Real life economics: understanding wealth creation*. London, UK: Routledge; 1992.p.4147–55. See also, Ekins P, Dresner S, Dahlström K. 'The four-capital method of sustainable development evaluation' *Eur Environ[Internet]* 2008;18(2):63–80.

[6] World Bank. 1994. World Development Report 1994 : Infrastructure for Development. New York: Oxford University Press. © World Bank. <https://openknowledge.worldbank.org/handle/10986/5977>
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[7] <https://treasury.govt.nz/information-and-services/nz-economy/living-standards/our-living-standards-framework>.

[8] Cultural capital in sociology has expanded on Bourdieu's 1986 essay, 'The Forms of Capital' to represent the world views, values, beliefs and experiences we have as a good that makes life more meaningful for the individual as well as the collective.

[9] Banfield, Edward (1961). Political Influence. The Free Press. pp. 241–242. Banfield's book introduced political capital as a 'stock of influence' to political theory in the 1960s and has since been used to describe the notions of empowerment and ability to access, exchange and shape public resources and the rules and regulations that affect its day to day functioning. Turner's recent work in community development has clarified that "sustained community development requires three elements to be successful. Economic and social capital are the first two elements...the third element is overlooked. Economic and social capital yields political capital, which serves to link community building, government assistance, and private investment in a neighbourhood." R. Turner, "Entrepreneurial Neighbourhood Initiatives: Political Capital in Community Development," *Economic Development Quarterly* 13, 1 (1999): 16.

[10] Cornelia Butler Flora, Jan L. Flora, and Susan Fey, *Rural Communities: Legacy and Change, Second Edition* (Boulder: Westview, 2004), 9. The CCF provided the methodological model for an international comparative study of 57 rural communities in 2003, sponsored by the North Central Regional Center for Rural Development (NCRCD) and the Claude Worthington Benedum Foundation to see how communities could use external financial investments to build upon social, cultural, human, political, economic, and environmental assets or capital to impact Community Economic Development (CED) and improve their overall well-being. See S Fey, C Bregendahl, C Flora, 'The measurement of Community Capitals Through Research', *The Online Journal of Rural Research and Policy*, Issue 1: March 2006.

[11] J Porritt, 'Capitalism as if the World Matters', Earthscan (2005)

[12] Banfield, Edward (1961). Political Influence. The Free Press. pp. 241–242. Banfield's book introduced political capital as a 'stock of influence' to political theory in the 1960s. Turner's recent work in community development has clarified that "sustained community development requires three elements to be successful. Economic and social capital are the first two elements...the third element is overlooked. Economic and social capital yields political capital, which serves to link community building, government assistance, and private investment in a neighborhood." R. Turner, "Entrepreneurial Neighborhood Initiatives: Political Capital in Community Development," *Economic Development Quarterly* 13, 1 (1999): 16.

[13] https://www.nzaia.org.nz/uploads/jenny_pope



Building resilience in Rural Communities – a focus on mobile population groups

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The idea of significant mobile populations has crept up on us. Traditionally we have thought of communities, rural communities in particular, as being somewhat staid and slow moving. Alongside ongoing primary sector changes in production and consumption, we now see an increase in mobile workers and, in the case of tourism, mobile consumers. Today most of our smaller communities are heavily dependent on these groups, be they involved in horticulture, dairy and other agriculture sectors, contractors of various forms, as tourists or serving them. As a corollary, communities and mobile groups themselves are increasingly vulnerable to extreme natural hazards and hazard events. This brief article introduces and connects with new research into the mobility of rural populations and also introduces a new resource to assist SIA practitioners and the communities they are working in, to assess and manage transience.

Data are hard to find at the local level but national level data paint a broad picture of the extent of some of these types of mobile populations. For the 2017/18 year there were 230,259 temporary work visas (+46% since 2012/13), and in the 10 years from August 2009 to August 2019, the number of work visas issued increased from 87,138 a year to 193,311 a year (+122%). Student visas increased from 58,398 a year to 84,552 (+45%). Many of the incoming workers meet the demand for mobile and increasingly essential seasonal work throughout New Zealand from small, medium and at times large enterprises for tasks such as pruning and fruit picking.

At the same time, across New Zealand international (and domestic) tourism continues to grow with the August 2019 year reporting \$3.9m visitors (+70% since 2009). Domestic visitor mobility is often overlooked, but domestic visitors are also growing, albeit at a slower rate and are consistently reported to be just over 50% of total sector demand. Domestic mobility is not necessarily seen as tourism but can involve significant daily commutes, 'tradies' on short-term projects and others on short work/inspections, or technical contracts. A final part of the broader picture of mobility across our population landscape is to note that the 2013 Census data show that 36% of the resident population had been living elsewhere in 2006. The picture that emerges is a landscape flush with movement, with communities of all shapes and sizes ebbing and flowing in response to the requirements of various employment demand factors, and the increasing need to provide services for the more mobile consumption patterns of tourism.

New Zealand communities also face a diversity of natural hazards! Building community resilience to nature's challenges requires understanding local risk profiles and vulnerabilities, including those associated with transient population groups. Natural hazard events can cause short-term movements in people as they move due to the impacts of the event, such as damaged housing. They can also attract large numbers of people working in the

response stage and then in the recovery stage, such as the construction workers brought into Kaikoura by the 2016 earthquakes there.

The following framework is a resource that provides guidelines to assist impact assessors and local authorities to identify and understand the transient population groups present in the communities under their remit. The framework proposes that mobile or ‘transient’ populations can be usefully understood according to a temporal continuum based on the length of time they are present in a community. It is framed by a four category classification within which transience (and its associated social vulnerabilities) can be understood more fully and it provides the basis for a structured set of questions (a community situation analysis) designed to raise awareness of the various transient groups found within communities.

The four groups of population proposed are:

Permanent residents	Semi-permanent residents	Temporary residents	Transient populations
Intention to remain	6 to 12 months	2 weeks to 6 months	Less than 2 weeks
Long-term residents Māori (turangawaewae) Medium-term residents New residents (NZ) New migrants (overseas)	RSE ² scheme workers Secondment workers Infrastructure workers Holiday home owners	Temporary workers Contract workers Infrastructure workers (Holiday home owners)	Domestic holidaymakers International tourists Travelling workers Emergency response Transiting public

Each transient population group can be further described by four key dimensions and their associated descriptors:

1. Temporal: time in community (as above); frequency of visitation; previous experience of place
2. Demographic: age; family structure; language; cultural distance
3. Economic: employment type; industry; location of employment
4. Spatial: type and location of dwelling; use of community, commercial and social spaces

Together, these characteristics influence both the type and degree of interaction and social connection between the various groups found within a community and the degree of in-group vulnerability. Differences occur between the transient groups whose individual members change over time (e.g., international tourists, WHM) and those which contain a stable population of individuals (e.g., new migrants, holiday home owners).

Each group’s visibility, prominence and importance within the host community also varies. Interaction between the permanent host community and transient population groups may be formal and direct, via employment or commercial accommodation provision, or informal and indirect, via social activities and encounters which occur in public and commercial spaces. The various transient groups also interact with each other in the employment, housing/accommodation and social arenas.

To improve the resilience of communities and of transients themselves the guidelines set out a framework for ‘settlements’ – as often these too are remote or dis-joint from formal governance structures – to chart out the dimensions of such groups in their communities. The research offers some ‘starters’ on building a community overview (including economic and social dependencies), connectivity (within groups and the residential community) and, population dynamics. For each of these there is a checklist of factors to consider.

The goal is to improve the resilience to nature’s challenges prior to experiencing significant



disasters such as the Kaikoura earthquake, alongside improving community integration and wellbeing.

Note:

Further information on the framework is available in a summary document '*Building resilience in transient rural communities: Guidelines for council*' which can be downloaded [here](#).

Additional research materials from the *Building resilience in transient rural communities* project are available as follows:

- [Scoping report](#)
- [Fieldwork report](#)

This note was undertaken within the 'rural backbone' theme of the Resilience to Nature's Challenges National Science Challenge undertaken by the author and Dr Jude Wilson.

Assessing the Impacts of a New Cycle Trail: A Fieldnote

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Introduction

In this note we consider the need for social impact assessment that focuses on sustainability outcomes of tourist trails across *multiple* dimensions, and in an *integrated* manner, to better inform the planning, implementation and management of trails and tourism more generally in rural regions (as per the recommendations of Reis and Jellum, 2012 and 2014). The note arises from work conducted under the auspices of New Zealand's Building Better Homes Towns and Cities National Science Challenge (*Mackay et al., 2018*). The study focused on the Alps to Ocean (A2O) cycle-trail and associated tourism initiatives, and how they are working together to improve the economic, social and environmental performance of settlements in the Waitaki Valley (South Island, New Zealand). The work was not part of the planning process for the trail, but was instead undertaken as research that followed through key aspects of the SIA process: scoping, building a baseline, assessment and evaluation.

The A2O

The A2O is a 300km, mostly off-road, cycle trail that descends from the base of Aoraki Mt Cook in the national park, through several small settlements located in the Waitaki Valley, before reaching the town of Oamaru (population 13,950) on the Pacific coast. It is still in development, both in terms of the trail itself, and the businesses and infrastructure along its path. The trail crosses mountain landscapes, alpine lakes, hydro-electricity canals, a large braided-river system and several geological features.

The A2O is one arm of the government-backed Nga Haerenga/NZ Cycle Trail, an extensive and interconnected network of publicly accessible on and off-road bike trails, some newly built, others pre-existing but now formally linked into the national network (*Kennett, 2013*). A key characteristic of the Nga Haerenga/NZ Cycle Trail projects is their emphasis on partnerships between central government, territorial authorities and local communities, in their planning, co-funding and development.

The A2O originated in the efforts of an enthusiastic local group concerned to develop a project with positive impacts on small towns along the trail, and the larger town of Oamaru. Positive outcomes are expected for local business and employment, along with an enhanced recreational environment and heritage protection. While the A2O began as a local initiative, it importantly received funding from central government through the Nga Haerenga initiative (*Bell, 2018; Wilson, 2016*) and strength from the involvement of Waitaki District Council in

project management and dealing with local issues, such as property access over private farm land.

Social Impacts

The starting point for the assessment was to map and characterise the range of regeneration initiatives in the Waitaki District and the periods over which they developed (scoping and baseline), and then to examine in greater detail the A2O as a case of a regional cycle trail. Key stakeholders were identified in the scoping analysis and their input helped the assessment of the effects of the trail, through the central themes of better, more integrated planning and assessment of regeneration initiatives – such as the A2O – and more sustainable development of tourism in the longer term. Data collection used mixed methods, including in-depth interviews and participant observation. Secondary, qualitative data included historical records, documentary research, reports, studies, media coverage, census data, economic and employment data, and GIS maps.

The assessment found that the A2O is helping to diversify and revitalise the District's economy and small towns along the way. This has happened in four key ways.

(1) A direct positive effect of trail-related expenditure, which has boosted the revenue of many tourist service providers.

Some stakeholders noted that the challenge is to ensure tourists and tourism revenue are dispersed evenly through the District to ensure the *whole* trail is a success, rather than parts of it, as was then the case. Furthermore, many stakeholders recognised that burgeoning visitor numbers combined with rapid growth in bikers on the trail have implications for the capacity of local infrastructure, the natural environment and heritage resources. Thus, the dispersal of tourists along the whole trail was viewed as one key way to alleviate tourist pressure at key sites. Community leaders recognised that burgeoning visitor numbers will increase the popularity of the A2O and test the capacity of local infrastructure and the environment, including heritage resources, calling for the monitoring of tourism and its impacts.

(2) A positive effect of trail-related investment in heritage buildings.

The A2O has prompted some locals (including farmers), often with help from outside investors, to purchase and convert old rural buildings (e.g., churches, woolsheds, old rail stations, disused pubs) into accommodation, agri-tourism attractions, bike shops and/or hospitality services (such as cafes) for visiting cyclists. The A2O is thus contributing in a very significant way to the conservation of built rural heritage across the region, a process that has happened in less than five years along the trail. Rapid change, however, has tested the adaptive capacity of communities and raises the likelihood of host resistance to further tourism developments, as residents sense a loss of place, potentially undermining the localised relationships necessary to initial development of the A2O.

(3) A much-needed economic boost for some small rural towns and the impetus for local entrepreneurial experimentation in tourism.

This is particularly evident in the small neighbouring villages of Duntroon and Kurow, where

old buildings have been, or are in the process of being repurposed to accommodate new enterprises that serve cycle tourists. Another particularly interesting example is the experience of the village of Otematata, a small rural community (population 186) situated near the mid-point of the trail. In the late 1950s, this was a hub for workers and their families who were constructing two hydro-electricity dams – the town's population peaked at around 4,000 people in the 1960s. Since then the town's population and economy has dwindled. The residents expect that the trail will diversify and revitalise their local economy and pointed to examples of new local business activity that was prompted by it (Mackay, Wilson & Taylor, 2015).

(4) Local tensions about the best ways to promote the area and sites to visitors in a cohesive way.

In addition to the A2O, the region is the site of a geopark, and home to Steam Punk and Victorian Heritage communities, who host numerous festivals and events. Multiple naming of areas, festivals and events reflects the ad hoc nature of these initiatives over time, each with leadership, energy and local organisation. This multifaceted approach has served to capture and maximise a diverse base of social entrepreneurship, organisational capacity and volunteerism (Mackay, Taylor & Perkins, 2018). On the other hand, in the longer term, and for larger-scale initiatives such as the A2O, a common approach is needed for promotion with a consistent marketing message. To sustain multiple local efforts, care is needed to balance enterprise, site and event promotion with any wider branding in the district, so that enterprises and individuals are not discouraged. The possibility arises for the A2O to act as an integrating mechanism for planning within the valley as it links several communities, a range of business initiatives, and local conservation and heritage projects. The integrative potential of the trail, used effectively, could see communities adopt a common approach to sustainable tourism management and enhanced social wellbeing.

Summing-up

The assessment shows that (with caveats) the A2O is helping to diversify and revitalise the local economy beyond cycles of economic development and activity typical of resource-based communities (Taylor, Fitzgerald & McClintock, 2001). Stakeholders recognise positive effects and sustainable futures depend on their ability to scale up and integrate multiple tourist initiatives and opportunities. Much more is needed in planning and implementing new tourist trails, such as the A2O, in a sustainable way. A narrow focus on increasing visitor numbers, nights and expenditure, as in the current visitor strategy (Gaskill, Elliot and Currie n.d.), is unlikely to meet sustainability objectives. To underpin sustainable tourism development, ongoing impact assessment, with monitoring, needs to cover all aspects of Waitaki tourism: bio-physical environment, cultural, heritage, economic and social.

SIA for tourism initiatives such as cycle trails will be most effective when undertaken within a sustainable planning framework to ensure the results are integrated into future strategic plans, natural resource plans, and infrastructure investment by local government. Key gaps faced by SIA teams will include information on visitor satisfaction and the social carrying capacity of sites, employment and skills. These gaps present opportunities for applied social research, including academic scholarship, to provide the in-depth analysis that SIA practitioners can draw on for future assessments of trails.

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The challenges of a new biodiversity strategy for social impact assessment

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Introduction – the biodiversity challenge

Threats to biodiversity sit alongside climate change as a challenge for New Zealand society. The Department of Conservation (DoC) is in the process of renewing New Zealand's biodiversity strategy, with a new plan to be in place by 2020. The discussion document (DoC, 2019) notes that as a biodiversity "hotspot" many of New Zealand's plants and animals are unique and play an important part in biodiversity at an international level. They also note how our biodiversity is under threat with ecosystems and species challenged by human uses, introduced species and climate change. These pressures, they note, have impacts on environments and people. They comment that:

"The state of our biodiversity is a legacy that we leave for future generations. We don't want to be the last generation to look up at a rātā tree or spot Maui dolphins in our seas. All New Zealanders want our mokopuna ... to be part of a healthy natural environment."

The Department refers to the systems and social structures that manage our biodiversity and invokes kaitiakitanga as a "spiritual and environmental ethos" that provides for protection of the mauri underpinning our natural heritage. Consistent with themes across government, DoC indicates that nature is fundamental to our identity, cultures, way of life and social wellbeing. Their approach is consistent with the importance of natural assets in Treasury's Living Standards Framework and the effort to increase the wellbeing of all New Zealanders. It is also consistent with the UN's 17 Sustainable Development Goals and in particular Life Below Water (Goal 14) and Life On Land (Goal 15).

In addition to formal organisations such as territorial authorities and iwi that have a key role in managing to protect our biodiversity, it is important to recognise the important role of community organisations in the biodiversity system. Within this system there are a number of management tools available including various types of planning tools. We might expect that impact assessment, and especially social impact assessment, will have a key part to play amongst these tools. Yet, to date, social impact assessment has played only a limited role in the development and implementation of strategies, plans, programmes and specific projects.

In this short paper I consider the use of SIA in conservation management and some of the challenges raised by this particular focus for SIA. I suggest that SIA, and by implication SEA, should play a more active part in the development of strategies, policies, plans and programmes and the projects that emanate from these strategic applications. The Predator Free NZ (PFNZ) strategy is a case in point with an SIA on Rakiura-Stewart island (henceforth Rakiura) providing a case study.

SIA and conservation management

Looking back, SIA in NZ has been used in the designation of new areas of national parks under the Conservation Act. Examples include an assessment of Punakaiki National Park (Stephens and Wells, 1983), relatively early in the development of SIA in this country. Another is an assessment of the social and local economic impacts of the proposed Kahurangi National Park (Taylor et al., 1999). Booth and Leppens (2002) undertook a study of the baseline social environment prior to the establishment of Rakiura National Park. Impacts identified in these studies included increased use of walking tracks and visitor facilities, and benefits for local tourism businesses, such as accommodation providers. There is considerable social science research on visitors and the visitor experience on conservation land (Lovelock, et al., 2011) and on recreation and tourism more generally (Booth and Mackay, 2007).

Wouters (2011) researched the ex post economic impacts of Tongariro, Abel Tasman and Fiordland National Parks. She found that tourist activity based on concessions to operate in these parks generated employment for the “gateway” communities in particular. Other research by DoC has considered wider social issues and impacts such as crowding in popular locations and the issue of social carrying capacity, especially on key walkways such as the Milford Track (Booth et al., 2011). The Department has also given consideration to how they should work with their host communities and key stakeholders (Cosslett, et al., 2004) and to social impacts on conservation lands generally (Cessford, 1992).

Another example is the assessment of the social impacts of marine reserves in New Zealand (Cocklin, and Flood, 1992; Craw and Cocklin, 1997; Taylor and Buckenham, 2003). These ex post assessments found there are a number of impacts, both positive and negative, evident for marine reserves. The major initial impact of a marine reserve tends to be focussed, in the early stages of consultation for a proposed reserve, on the fishers who previously fished the waters of the reserve. The prohibition of extraction from their local waters is considered by recreational fishers as the further loss of a diminishing resource and additional costs of time and money by commercial fishermen. Both groups perceive a potential loss of property rights. Nevertheless, it is also evident, even in the early stages of planning a marine reserve, that some stakeholders consider there will be an increase in the number and size of fish in the reserve as the ban on extraction takes effect, and that this increase will give rise to a spill-over effect that benefits both commercial and recreational activities beyond the boundaries of the reserve in the longer term. Those in favour of marine reserves also identify beneficial, long-term effects as they offer protection to a major part of New Zealand’s natural heritage and help to sustain marine resources for future generations. As with national parks, there are clear benefits to local economies and gateway communities from increased visitor numbers and associated tourist facilities. Although, as also found in national parks, the increase in visitors can challenge facilities such as parking and cause crowding issues at popular spots.

Predator-free New Zealand

Predator-free New Zealand (PFNZ) is a potentially transformational programme in respect to the status of our biodiversity, public perceptions of native flora and fauna, affecting a range of values including cultural uses, outdoor recreation and tourist activity. The programme also has positive effects on public involvement in activities such as predator control and restoration of habitats. The [Predator Free NZ Trust](#), for example, is “ a private charitable organisation established to encourage, support and connect New Zealanders in their efforts to control and eradicate introduced predators including rats, possums, and mustelids so our native species’ populations can increase in our lifetime.”

The focus in New Zealand to date is on eradication of mammalian predators from uninhabited islands, which provide for sanctuaries for endangered species and ecological restoration. Under PFNZ, this effort is shifting to smaller inhabited islands and small areas of the main inhabited islands, known as mainland islands; some with fences such as Zealandia in Wellington City, and others are unfenced such as Ark in the Park in west Auckland. These efforts garner considerable community support and direct participation through voluntary effort in eradicating and monitoring pests.

Island ecosystems present great potential and particular problems in the management of endangered species. Eradication of non-native mammalian predators from an inhabited island is a particular challenge, one that requires consideration of both ecological and social feasibility (*Russell et al. 2017*). Where the eradication of small mammalian predators, especially rodents, is particularly problematic socially is in the aerial distribution of toxins, including 1080. These activities have a history of contention around issues such as Treaty obligations, community consultation, human rights, animal welfare and public health. The issues involve risk perceptions around the potential side-effects on non-target species including hunting animals, livestock and domestic pets. There is potential for social conflicts to emerge over proposed predator control operations and these responses raise the flag that SIA could assist in strategic planning, decision making, programme design and implementation.

An interesting additional aspect is the debate around the social acceptability of pest management and the science behind predator control. Public concerns give rise to the need to establish the level of community support and consent in the sense of a ‘social licence to operate’, in addition to any consents and conditions on consents required under the Resource Management or Conservation Acts for particular control operations (*Fitzgerald, 2009*).

The SIA of Predator Free Rakiura-Stewart Island

A recent example of SIA for planning a predator eradication programme on an inhabited island was completed for the predator-free programme on Rakiura the third largest island in New Zealand. The proposal is eventually to free Rakiura of mammalian predators such as rats, possums, hedgehogs and feral cats, which cause extensive degradation of native wildlife including birds, reptiles and insects (*Russell K., et al., 2018*).

The focus of the Rakiura SIA was on the intended and unintended social consequences, both positive and negative, of predator control leading to eradication of mammalian predators on Rakiura. The assessment was a strategic SIA, one focused on developing a

programme of conservation work rather than a single project. The SIA concluded that predator-free Rakiura is best framed as a programme of conservation work that is likely to include a number of eradication projects over time. In this context, social impacts can include effects on people and communities, including employment and livelihoods, local economy, outdoor recreation and amenity values.

The assessment explored the likely impact of PFR on the visitor sector and associated infrastructure as the assessment found that visitor numbers are widely expected to increase as a result of predator-free status for the island. However, views differ as to the benefits of tourism for the island. Many residents and businesses see tourism as an essential component of Rakiura's economy and livelihoods, as well as adding richness to the community and available services on the island. On the other hand there are those who are critical about the utility of further tourism growth on the island, questioning any potential disruption to the island's 'way of life', including the natural and social-cultural environments.

A strong finding from the SIA was therefore that the long-standing interest in conservation on the island, alongside an active interest in the ecological benefits of predator control from a range of stakeholders including deer hunters, is an important building block for the proposed programme, one that could be facilitated by a dedicated programme manager on the island. There is clear evidence that local people value the intrinsic ecological values of the island and the specific ecological benefits of predator control for particular species. These values are consistent with Rakiura being a focus for conservation management and an ambitious eradication programme.

Another important finding from the Rakiura SIA was the reiteration of particular social and economic characteristics of small island communities that provide a starting point for future social assessment of conservation policy, plans and programmes on our inhabited islands. These characteristics include a community that is highly motivated and engaged around conservation and many other issues affecting island life. Working with this feature of social life is essential for success in designing and implementing the programme, including mitigating any potential effects on livelihoods and ways of life, including fishing and recreational hunting.

SIA is now recognised as a pre-requisite for programmes of pest management (*Russell J. et al. 2017*). Inhabited islands such as Rakiura, or Aotea or Waiheke in the North, provide unique forms of human-ecological systems that challenge SIA practice. In particular, they force SIA practitioners, conservation managers and biologists to address issues of integration between their areas of work.

Conclusions – the challenge for SIA applied to future biodiversity planning

Looking forward, protection and enhancement of the biodiversity of Aotearoa New Zealand is a major societal challenge. Programmes to control or eradicate invasive species such as PFNZ, or to enhance freshwater management as with proposals to strengthen the national policy statement on Freshwater Management, or to support regeneration of native forests for carbon sequestration, or implement the Billion Trees Programme, are transformational. SIA can help to design and implement these transformational strategies, and the plans and specific projects that follow them. To make such a contribution, social impact assessors need to work alongside ecologists and conservation managers, finding ways to understand human-ecological systems better, to integrate their different approaches, and to work with affected communities and stakeholders.

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“Say goodbye to traffic”? The role of SIA in establishing whether ‘air taxis’ are the logical next step in the evolution of transportation

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Introducing Air Taxis

The idea of zipping to work, or whizzing to the beach, in an electric, driverless helicopter taxi might sound like science fiction. However, several companies are developing technology that aims to make this scenario a reality (Cora, 2019; Opener, 2019; Volocopter, 2019). For example, California-based company Kitty Hawk and New Zealand operator Zephyr Airworks are testing a vehicle they describe as an ‘air taxi’—and have affectionately named ‘Cora’ (Cora, 2019). While the vehicles being tested are exciting from technological and experiential perspectives, we really should be considering the potential impacts of such transformative technology. The pictures painted by technology developers are of clean, quiet electric flight, open to everyone, never stuck in traffic, and revolutionising everyday travel.

But here’s the rub: transport systems are just not that simple.

Impacts of travel

Transport is critical to almost everything we do. It influences where we are able to live and work, the opportunities that are open to us and those that are closed, and the social networks that we are able to establish and maintain. Consequently, when we change how we get around, we change how society works.

Back in 1932, HG Wells noted that we really should have anticipated the consequences of travel by motorcar:

See how unprepared our world was for the motorcar. The motorcar ought to have been anticipated at the beginning of this century; it was bound to come. It was bound to be cheapened and made abundant. It was bound to change our roads, take passenger and goods traffic from the rails, alter the distribution of our population, congest our towns with traffic. It was bound to make it possible for a man to commit a robbery or murder in Devonshire overnight and breakfast in London or Birmingham. Did we do anything to work out any of these consequences of the motor car before

they came? Not much. We did nothing to our roads until they were choked. We did nothing to adjust our railroads to fit in with this new element in life, until they were overtaken and contemplating the possibilities of bankruptcy. We have still to bring our police up to date with the motor bandit. (Wells, 1932)

Over 85 years later, we are still grappling with issues of congestion, population distribution (think: housing affordability), and environmental degradation that are inherently linked to private motor vehicle travel. As we face a whole raft of new transport innovations, from electric scooters to automated flying taxis, it is appropriate to ask whether we can apply what we know about how transport and society interact to consider which new technologies to prioritise and what kinds of impacts we may have to accommodate or mitigate.

Induced demand

A key principle to explore here is induced demand. Induced demand, in a very simple sense, refers to the idea that when we make it quicker and easier to travel, people travel more (for a more detailed discussion of induced demand see Schneider, 2018). This idea has most commonly been applied to road traffic and the construction of new road capacity (Downs, 1962; Dunkerley, Laird, & Whittaker, 2018; Litman, 2019). Particularly, it has been recognised that when a new road is built (or an existing road improved) to ease congestion, an increase in vehicles travelling on that route often results (Dunkerley et al., 2018). This increase in vehicle travel is thought to stem from travellers changing their travel choices in response to quicker and easier travel. Indeed, it is often reported that individuals spend a relatively fixed amount of time per day travelling, and when travel speeds increase, rather than spending less time travelling, people typically travel further (Bleijenberg, 2017; Marchetti, 1994; Zahavi, 1979).

In a practical sense, when congestion is high, travellers may choose to forego trips rather than battle traffic, to choose nearby destinations rather than more distant ones (such as local shops rather than larger malls), to use active or public transport rather than experience the stress of driving, or to avoid peak-hour travel (Litman, 2019). All of these strategies reduce peak traffic volumes, but when congestion reduces, they can easily be reversed. Anthony Downs, one of the early pioneers of the idea of induced demand wrote:

We thus arrive at the paradoxical conclusion that the opening of an expressway could conceivably cause traffic congestion to become worse instead of better, and automobile commuting times to rise instead of fall! (Downs, 1962, p. 405)

Could air taxis induce demand?

Cora is currently a test vehicle, but is claimed to be “the beginning of a journey towards everyday flight, where air travel will be woven into our daily lives” (Cora, 2019), and a promotional video suggests that “ultimately, in the decades to come, there will be tens of thousands of these aircraft” (Cora, 2018). Other companies make similar claims. It seems relevant, then, for impact assessors to ask what kind of demand automated helicopter taxis might induce and with what implications. I asked this question following a presentation by a representative of Zephyr Airworks at a conference in mid-2019 (Kominik, 2019). Ms Kominik’s response humorously noted that she did not envisage Jetsons-style aerial congestion within her lifetime. Her response also appeared to abdicate responsibility for wider future implications by commenting that future generations would have the opportunity

to make decisions about the type and extent of future transport systems.

A less offhand, and more intergenerationally just, response to the demand inducing potential of helicopter taxis might note the, albeit perhaps temporally distant, possibility of aerial congestion. If we expand current vehicle travel possibilities to include cheap and quick aerial taxis, we may shift trips from existing modes and increasingly include trips that we do not currently make. Trips to a better (more distant) mall, beach, dentist, workplace, or restaurant might all become more feasible, resulting in additional travel and increasing numbers of aerial vehicles.

Airspace

With air taxis, conflicts for air space may intensify. Air taxis may compete for space with unoccupied drones, traditional air traffic, and landowners who do not wish to be under flight paths (for a contemporary example of such conflict see *Hunt, 2019*). Airspace is not infinite, is usually governed by use regulations (*Civil Aviation Authority of New Zealand, 2019a, 2019b*), and could become congested if vehicles like Cora succeed in the “mission of bringing everyday flight to everyone” (*Cora, 2019*). Downs (1962) noted that:

...only a road or system of roads wide enough to carry every commuter simultaneously at optimal speed would be sufficient to eliminate all peak-hour congestion. It is obvious that no such roads are practical unless we convert our metropolitan areas into giant cement slabs.

It is relevant to consider how much of our urban airspace we would be willing to devote to aerial transport, how much aerial congestion we would be willing to tolerate in the skies above us, and how this may influence the safety and comfort of those on the ground. Electric aerial vehicles may be quiet and clean (compared to combustion driven vehicles) but the implications of things like aerial collisions, changed urban wind environments (*Crew, 2017*), visual pollution, and implications for urban bird populations are worthy of forethought.

On the ground

It is well accepted that the way we travel influences the shape and size of urban areas. Increased travel speeds have a history of contributing to the development of urban sprawl (*Bruegmann, 2005; Newman & Kenworthy, 1996*). If air taxis facilitated everyday aeromobility, we may see the further development of urban sprawl with all of its usual associated impacts for the environment, for equity, accessibility, and social networks, and for active travel and population health. The high energy requirements of take-off mean that aerial vehicles are more efficient over longer, rather than shorter trips (*Kasliwal et al., 2019*). This may help to encourage people to make longer journeys resulting in the redistribution of populations and amenities. One technology developer proudly envisions a future in which people will have “the freedom to live in the country, while still being able to work in the city” (*Opener, 2019*); the developer does not highlight the potentially broad implications of such social change.

We may see reductions in land used for ground transport (such as roads and parking facilities) (*Kasliwal et al., 2019*), but we might also need greater devotion of land to the generation of sufficient electricity to power electric aerial vehicles. The ground-based implications of air taxis are not as straightforward as the simple elimination of congestion.

Conclusions

A Jetsons-style era of everyday aeromobility may not be imminent, but efforts are underway to develop vehicles capable of delivering such a future. We know from historical precedent that changes in transport technology can have profound impacts on how our society works (Wells, 1932). We also know that once we have embarked on widespread adoption of a particular form of mobility it can be difficult to change direction (Imran & Pearce, 2015). Consequently, before we accept that air taxis are “the logical next step in the evolution of transportation” and we can “say goodbye to traffic” (Cora, 2018) we should consider, and take responsibility for, the full range of impacts that might be associated with such a transition. Herein lies a challenge for social impact assessment.

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