Social Impact Assessment (SIA) for community resilience in the Upper Waitaki River Catchment, New Zealand.

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Introduction

This paper reflects on a regional land and water assessment and planning process in the Upper Waitaki River Catchment of New Zealand's South Island, one of New Zealand's largest river systems. For the past two years, under the auspices of Environment Canterbury (ECan - the area's regional planning authority), a selection of local representatives, known as the Upper Waitaki Zone Committee, have worked closely with their communities, local government and an inter-disciplinary science advisory team, to develop a set of planning recommendations that will assist the Council in developing policies to realise the community's aspirations for water quality, sustainable economic development, community well-being and resilience (ECan, 2012). The resulting recommendations package (ECan, 2015) includes 'on the ground' actions and catchment-specific environmental limits set to a level that will improve the quality of water in lakes, streams and rivers (while not thwarting opportunities for new rural business creation).

The specific focus of this poster-paper is on the social impact assessment (SIA), which was carried out *with* the Waitaki Zone Committee and communities as part of the participatory plan-change process. The paper first discusses how the SIA team worked together with local residents, water stakeholders and scientists to develop a broad understanding of social change in the valley (i.e., the co-production of an SIA 'baseline'). The paper then provides an overview of how the SIA team worked with the community, water stakeholders, planners and the wider science advisory team, to explore and understand the social impacts of various land-use change scenarios.

The central theme of the paper is the need to assess social and economic impacts of water uses as part of an integrated process of planning and management of catchment water and land uses to achieve resilient community outcomes. Here, resilience is used as a term that refers to an integral aspect of the sustainability of social-economic and ecological systems and their ability to bounce back from disruptive events as well as slow onset changes, including government policies and plans for water. In this sense, an SIA is interested in interlinked outcomes that together could lead to enhanced resilience (Taylor and Goodrich, 2011).

The Upper Waitaki Valley

Before discussing the two phases of the SIA process, we provide a quick snapshot of the catchment – a profile of its people and resources. The Upper Waitaki Valley is home to the Waitaki River, which rises in the Southern Alps of the South island, running east from Aoraki/Mt Cook (New Zealand's tallest mountain) to the pacific coast between South Canterbury and North Otago. Within the catchment there are distinct geographical areas including mountain lands with permanent snow fields and glaciers, high and hill country dry grasslands, a dry inter-montane basin, and irrigated river flats (Taylor et al., 2008). The Waitaki catchment is best described as a 'multifunctional' rural space (Perkins et al., 2015; Taylor et al., 2015; Mackay et al., 2014), one where hydro-electricity generation, agriculture, aquaculture, and the tourism and commercial recreation sectors together build relatively resilient economies of its small towns and settlements, against the vagaries of local and extra-local economic cycles and climatic events, particularly lengthy periods of drought and the lows of commodity cycles. Pastoral farming in the area, traditionally the dominant economic activity, includes extensive, fine-wool (merino) sheep production, sheep and cattle farms, and some dairying.

The introduction of an extensive hydro-electric power generation system in the valley has, over the last 70 years, stimulated dramatic landscape change and considerable community change. A series of dams on the Waitaki River form a network of large canals and hydro-lakes, which while production-orientated, also provide the ideal setting for a variety of land and water based recreation opportunities, particularly boating, camping and angling (Wilson and Mackay, 2015: Taylor et al., 2015). International and national tourism draws on the dramatic mountain, lakes and river scenery and the local recreation opportunities. A very recent tourism development in the area is the Alps to Ocean (A20) cycleway, which winds its way off-road from the Southern Alps (Mount Cook) to the East Coast town of Oamaru. This cycle track is rapidly gaining an international reputation as a 'must-do' tourist activity and local communities are beginning to take advantage of heightened visitor numbers and associated local economic opportunities (Jamieson, 2016).

Assessment Approach

The overall approach to the SIA was consistent with widely accepted international approaches in scoping the assessment, building a baseline and assessing future options, while emphasising the involvement of affected people in the assessment process. It also followed procedures of ethical practice in that people who participated were well informed at all times about the assessment process and technical details through a range of media and took part in a voluntary manner. The SIA team protected informants (including from other technical experts and ECan staff) by way of anonymity and confidentiality. These aspects are important because of the potentially adversarial nature of the planning process at later stages (Baines, et al., 2013).

The Upper Waitaki Valley land and water plan-change process (*Plan Change 5* to the *Canterbury Land and Water Regional Plan*) was developed and undertaken as a participatory public process. In practice, over a period of two years, a series of community workshops were held in local spaces throughout the catchment, with the purpose of informing residents of the plan change process and *involving* local people in the development of local solutions for local land and water management issues. As noted above, a Zone Committee (comprising various representatives from the community) was formed to oversee the process and to act as a conduit between residents and Environment Canterbury plan-makers. Science advisory teams were also formed to provide communities and the

Zone Committee with expert opinion and support, when required, and to help develop technical reports on their behalf.

Social baseline

An important early stage in the plan-change process was for the community, Zone Committee and science advisory team to develop a baseline understanding of land-use change in the Upper Waitaki Valley. Open conversations, facilitated by project managers, were undertaken with local people focusing particularly on changing trends in land-use and their impacts on water systems, local economy, cultural values, water-based recreation and community life. The technical advisors used these early conversations as the basis for beginning to develop a rich description of the catchment (the "current state"), with the community invited to check and sharpen this baseline understanding based on their knowledge and experience.

The SIA team worked with the community to produce a social profile (baseline) of the catchment covering employment trends, levels of population and detailed demographics, settlement size, social service availability, recreation opportunities and social equity issues. The final profile (Taylor et al., 2015) integrated the following data sources:

- Local knowledge (insights from community meetings) and associated discussions
- Secondary data (census information, popular media reporting and social research resources)
- In depth interviews with key informants from the communities and various sectors
- An internet-based recreation survey utilising mapping functions for recreational activities and issues.

A key factor in developing the SIA baseline was an extensive set of existing research on the catchment that dates back over several decades, emphasising the importance of a longitudinal research base (Taylor, et al, 2008). The catchment has attracted attention from social scientists due to its iconic position as a cultural landscape, one that reflects a wide range of cultural, social, economic and ecological values.

Future pathways

With an extensive baseline in place, a second series of community workshops, supported by technical analysis, were undertaken to explore the impacts of local change scenarios that, in broad terms, ranged between expansion of intensive farming focused on achieving economic outcomes, and reductions in intensive farming along with widely applied farm mitigation practices to achieve a "green" set of outcomes. In effect, these scenarios were testing elements of the resilience of rural systems under different land and water regimes. The technical team informed the community conversation by using the best available science to predict the future consequences of each change scenario across a set of agreed social, economic, environmental and cultural values. The aim was to stimulate an informed debate within the community about preferred development pathways and mechanisms that might be worked into a planning framework to achieve these development goals (including environmental limits).

Results

The baseline study described a wide range of values attached to the water bodies in the catchment. These include productive and consumptive uses of water that provide reliable irrigation and stock water supplies, aquaculture and drinking water. Hydro-electricity is a major component of catchment GDP. There are also important recreational, ecological and intrinsic values of rivers, streams, groundwater and drains, lakes (natural and man-made) and wetlands, and the recreation and tourism sector is a further major component in the catchment economy. The many values associated with water shape the people and communities of the catchment, their social organisation, identities, and ways of life. Water enables people to gain economic livelihoods through employment and business activities and therefore meet social needs. Water is therefore key to the resilience of the catchment population and communities through its direct impacts on social wellbeing.

The baseline assessment identified particular factors that reflect the relative resilience of the catchment's people and communities as expressed in desired community outcomes such as employment, economic activity, stable populations and environmental quality. These factors include:

- The stability of rural populations where the level of employment is directly related to the level of population, so fluctuations in economic activity through natural (seasonal and climate cycles), commodity price cycles, and the level of private and public investment, has a direct impact on the resilience of settlements;
- The diversity of economic activity whereby the resilience of people and communities is higher when there is a dynamic mix of economic activity (farming, hydro-electricity, aquaculture, tourism, recreation and the service sector) as evident in a multi-functional rural space; and
- The presence of a wide range of water-based and other recreation opportunities and amenity values that attract visitors and amenity migrants into the area, depending on the high quality of the natural environment and scenic values.

From the scenario work investigating options for the future, the SIA team found that positive economic outcomes were likely with positive impacts on employment and household income from additional intensive (irrigated) and extensive land uses or additional tourism (Taylor, et al., 2015). The analysis indicated additional employment would flow into population and social services, and community life such as schools, to better meet community needs. But this growth scenario did not necessarily equate to increased resilience. Associated changes to the structure of farming can undermine community cohesion in the longer term and require a number of positive change management strategies, such as integration of newcomers attracted by economic activity into small, rural places. A further social concern was found to lie in potential increased risks to surface water quality over time, particularly in sensitive waterbodies with high recreation and conservation values, and bodies sourced for drinking water supplies, placing emphasis on the need for good farm management practices, and careful monitoring of growth activities, including increased tourism and urban infrastructure. Other concerns arose around desired outcomes of sustainable farming systems and vibrant rural communities. There is likely to be continuing change to the structure of farming with a trend away from family farming systems towards more corporate systems. The problems

communities identified with this change were the loss of community cohesion from a more itinerant workforce from both farming and tourism, and also the loss of owner operators (men and women) actively engaged in leadership roles.

Overall, the effect on social and economic wellbeing from the recommended package of formal and informal plans allowing some modest growth alongside better environmental management that was developed jointly by the community and Zone Committee, should be positive with sustainable positive impacts on resilience. There will be, however, an ongoing need in the catchment for communities to actively engage in environmental monitoring and also in the management of social change (such as recreational capacity) alongside monitoring of water quality and ecological outcomes. This active involvement through the Zone Committee or similar mechanism should also have a positive effect on community cohesion arising from active involvement of the farming and tourism sectors in catchment management.

Concluding comment

This paper reiterates a need to assess social and economic impacts of water uses as part of the process of planning and management of catchment water and land uses to achieve resilient community outcomes. As used in this paper, the term resilience refers to the sustainability and adaptability of social-economic and ecological systems, particularly their ability to respond to slow-onset changes. In this context, the particular value of SIA is its focus on understanding local and extra-local change processes and appropriate and effective actions on the ground, including policy and plan preparation and community-led initiatives, to strengthen community resilience. In the case illustrated in this paper, the notion of community resilience was built into the SIA via its 'outcomes' focus and futures-orientation, a process which, in practice, was achieved *with* the community and through the integration of local knowledge, longitudinal research, a theoretical understanding of multifunctional rural space and change, and a focus on impacts management and ongoing monitoring.

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