Future Research Priorities – Policy SIG meeting September 2010.

Hazards

Generally there is a lack of coverage of natural hazards area in CI&RN document. There is an overall need for better tools to assist with the analysis of, and responses to, hazard risks. It is recognized that there are some standards available, but more research is need to provide a more robust and defensible position to address hazard risk more effectively, and to give decision makers confidence. The key issue is risk management, how to deal with risk. This includes residual risk, which is seen as a critical planning issue around questions of where development is appropriate in relation to our understanding of the various risks.

In this is quite a large portfolio of research need to be considered, including managed retreat, insurance as a tool for managing risk and the 4R's – emergency management. In the past most hazard responses are captured by engineers and this approach has not really given us the tool to manage the residual risk component. Specific criteria against which risk is assessed would be very helpful and would idea of what's acceptable risk? It is noted that there are some international standards and work in this area, e.g the ISO document (?). How ever the criteria aren't specific enough to measure against. E.g., Wendy Saunders GNS doing some of this for tsunami risk. What's the spectrum of intervention options?

Policy effectiveness

It was generally agreed that a need exists for better approaches for assessing the effectiveness of policy, including a toolkit, including tools that can model the likely impact of policy options in terms of effectiveness. Termed consequences evaluation the idea is actively undertake research into the difficult area of assessing the efficacy of different policy approaches. Such research would need to be integrated with SEM and LTCCP monitoring. Regarded as being relatively easier in water management it is clearly a more difficult task in areas such as conservation management etc.

Importantly, such a research stream would need to determine what produced the benefit, make connections with other disciplines, including economics, the biophysical sciences, and the social sciences and with existing programmes. In all it was thought that the SIG should signal that was a need for a new research capability in regard to policy effectiveness in environmental management, particularly in the context of the RMA. There is an opportunity to package up this idea and take it to central government to develop new capability in NZ. It was though that it could be developed into a business case.

Methods for determining priority access to water

Need greater research into methods for determining priority access to water. This type of research would be especially useful if it focused on what might be done in cases of full allocation and competition. There are a couple of options to consider, each with problems. The LWF is dealing with this, and MfE. Is there a research requirement? Views across regions are influenced by understanding of current law. No one is, however, really looking at how to design a system to deal with scarce water. LWF may provide something useful. Need for coordination with SWIM and GWF.

Cumulative effects and valuing ecosystem service

It was agreed that cumulative effects on the environment and the value of ecosystem services is still an area where insufficient research investment in occurring. Research is also required into the differences between the scientific and the legal communities' interpretations of cumulative effects. For example, how do we protect the services that wetlands generally provide, such as water cleanup, flow regulation – hydrological, ecological, and chemical

functions, and amenity? How can we do this at a policy level? How does a consent model cope with the question of cumulative effects? The same can be said of the issue of our ability to clearly define assimilative capacity. For example, what are the tipping points for a resource? Tipping points can be defined for water bodies, for example, and can be informed by science.

Such a research programme may need to be on a unit by unit basis, having regard to scale and biophysical boundaries, based on an identifiable resource. Indicators - impact on biodiversity and impact on spatial extent. How valid are these? Some feeling that there is a Meta issue covering all these types of questions. Such as, "What your resource is? What are the limits? And then how do we allocate it." This Quota Management is an example. Assimilative capacity can be viewed as a resource and allocated. To do this we need to have a better understanding of the resource.

Land–use information

Poor data on land use intensification and its associated cumulative effects.

Biodiversity assessment

Need to improve our assessment of significance – particularly on private land. Criteria based approaches or mapping. A gap for ES. It was noted that some councils have this.

Morphological character of rivers

The forgotten area of water management in terms of rivers is the morphological characteristics or rivers. What's good morphological character? (Natural character in a sense). Relationship between flow regime and morphology also hasn't had much attention. We note that Ken Hughey's project looking some aspects.

Settlement patterns

Settlement Pattern: linking the physical resources of the built environment and rural hinterland (perri urban). Better understanding of increased emphasis on management of infrastructure and how this interlinks with natural resources. Further the links with transport planning and urban planning need more attention, in particular what are the impacts – e.g., on landscapes? What are the patterns of urban settlements in relation to energy? How might we design and redesign of settlement patterns, managing change and better manage urban environmental change?

Other matters

Portability of research

The group suggests a greater focus on the portability of research results in research.

Urban stormwater

There in a need to increase research into processes around urban stormwater quality improvement, particularly brownfeild developments and existing uses. Key questions include, how do small councils cope? And what are the impacts on receiving environments?

Valuing the NZ brand.

What's it worth?

Affordability

The question of affordability is an interesting one which warrants further research. For example, when do things become unaffordable? Over what time horizon? And for what resource etc?. Need to understand affordability at the start of a research project, not necessarily just in dollar terms but in broader context of societal progress.

Urban foot prints

Need to look into improving our understanding the challenges of re-forming the functioning patterns of urban footprints in the face of sea level rise. The current knowledge on redesign in response to sea level rise is very limited. Need to consider adaptation, retreating, reforming our cities and a better understanding of tsunami risk.

Tangata Whenua values

Need to establish criteria and indicators.

Priorities

**** Policy effectiveness

**** Hazards

**** Cumulative effects and assimilative capacity

**** Settlement patterns

Tanagta Whenua values – indicators

Science policy and communications

Allocation of water

Biodiversity assessment

Morphological characteristics of rivers

Urban stormwater

Affordability

Portability of research

Urban foot print

Land-use information

Governance