Oral presentation on CRU's submission to the GWRC

5 June 2014

My name is Bryce Wilkinson. I am speaking to CRU's submission. I am a committee member of CRU and a Kapiti Coast resident. I come from a science family and have an honours degree in chemistry and a PhD in economics. My career spans 12 years in the New Zealand Treasury, 12 years in investment banking and approaching 20 years running my own economic consultancy firm, Capital Economics limited. I have a solid background in public policy and investment analysis.

I plan to take 10 minutes to walk you through CRU's submission and three related submissions that CRU's submission supports and adopts. That is in order to leave you good time for questions.

CRU was formed in 2012 [check] to challenge the Kapiti Coast District Council's precipitous and deeply flawed decision to annotate the LIMs of around 1,800 coastal properties on the basis of a coastal hazard report that a subsequent independent science panel confirmed was not fit for purpose.

The full extent of this debacle is set out in the associated submission by retired former Principal Environment Judge and alternate judge of the Environment Court, Joan Allin. She has also been a senior lecturer in law at Victoria University, resource and a resource management partner at Chapman Tripp. Now retired, she is also a Kapiti Coast resident.

I will return to her submission.

CRU's submission. CRU primarily represents coastal property owners. We reject out of hand the view in some policy quarters that property owners are a negative influence on policy formation.

To the contrary, coastal property owners have the greatest interest in accurate assessments of future likelihoods and options concerning sea level rise. This is because we have the most at stake and the greatest management responsibilities.

Our experience to date has been that the treatment of risk and decision-making under uncertainty in official material generally has not been fit for purpose.

We have seen scientists and coastal engineers who demonstrate no expertise in optimal decision making under uncertainty represent highly conditional 'what if projections' as unconditional predictions and make ad hoc adjustments for risk that represent no one knows what.

Some have confused the roles of scientific assessment with the role of a decision-maker. They have become advocates for policy directions or decisions.

As stated in our submission, CRU's view is that a crucial problem in policy formation to date has been the lack of input from experts in statistical decision-making under uncertainty.

We submit that signs of these weaknesses are also apparent in the GWRC's draft Climate Change Statement (DCCS).

For example, section 3.2.1 pages 5 and 6 are replete with statements concerning future expectations that are not represented as being model- or scenario-dependent. The IPCC cannot be the source of these statements since its projections are model- and scenario- dependent.

Furthermore in section 3.2.2 it claims to have identified three climate change risks for the Wellington region, yet provides no basis at all for assessing whether those risks are remote and speculative or robust likelihoods.

Note that there is no assessment in these sections of the degree of reliability that should be attached to the predictive statements in them.

Property owners are keenly interested in the distinction, even if others are not. We know in broad terms that the IPCC has documented many sources of uncertainties concerning its projections, some of which we identify in our submission.

Dr de Lange's report. CRU is not an expert in assessing the speculative nature of the conclusions about the future referred to in pages 5 and 6. So we commissioned Dr Willem de Lange to assess them for the benefit of ourselves and others.

Dr de Lange is Senior Lecturer in Earth Sciences at the University of Waikato. He is an expert in tsunami and storm surge prediction and mitigation; wave-induced sediment transport; dispersal studies; climate change; oceanography.

His report is detailed and technical. If you have the full document it runs to 66 paragraphs. If you do not have the full document, please do not blame the GWRC. There was a glitch in transmission for which it is not to blame. But it has the full version now.

Sea level rise. With respect to the assertion on page 5 that sea level rise is currently tracking toward 0.8 m by the 2090s or around 1 m by 2115, Dr de Lange finds inter alia that:

- absolute global average sea level changes have not been a good fit historically with absolute local sea level changes;
- the relationship is so weak and local variability so high that an anthropic effect is unlikely to be statistically discernible before 2100; and
- relative to local land mass, local sea level rise is tracking well below MfE's planning guidelines and it is unlikely that it will accelerate by enough to make good the shortfall.

In a nutshell, the observed sea level is tracking below MfE guidelines and their achievement is *very unlikely*.

Extreme weather events. Turning to the DCCS's climate extreme projections on page 5, Dr de Lange finds, inter alia, that:

- the projected changes are very unlikely to be detectable before 2100 due to the scale of local natural variability;
- the downscaling from global to local projections that MfE relied on in producing its guidelines is now known to be flawed;
- there is such fundamental disagreement concerning the relative influence of key local influences that any projections about future extremes should be regarded as unreliable.

Temperature rise. With respect to the DCCS's average temperature rise assertions on page 6, Dr de Lange observes inter alia that there is strong evidence that the CMIP5 models have over-projected subsequent temperature changes.

The same problems are evident in the earlier models used to produce the MfE guidelines.

There is little agreement concerning the competing explanations for these model failures.

Given these unresolved problems it would be imprudent to rely on model projections for planning purposes.

Instead, planners should be more weight on statistical evidence of significant changes in trends in the historical record.

CRU commends Dr de Lange's full report to all who have a serious interest in distinguishing between real risks and highly speculative risks. We expect that this will include the GWRC.

Joan Allin's submission is complementary. She is a legal expert, Dr De Lange is a scientific expert. Her submission is also too detailed and technical to do it justice in this presentation.

In summary, her submission stresses the need:

- to reflect uncertainty better;
- to correct the portrayal of what happened in Kapiti, in particular the problems caused by flawed coastal "science" wrongly taken initially at face value without meaningful peer review;
- for statistical input, contestable peer review and public input on assessments by coastal scientists before the GWRC refers to or relies on them in DCCS, or elsewhere in GWRC documentation.