BEFORE COMMISSIONERS APPOINTED
BY THE WAIKATO REGIONAL COUNCIL

IN THE MATTER	of the Resource Management Act 1991
AND	
IN THE MATTER	of the First Schedule to the Act
AND	
IN THE MATTER	of Waikato Regional Plan Change 1- Waikato and Waipā River Catchments and Variation 1 to Plan Change 1
AND	
IN THE MATTER	of submissions under clause 6 First Schedule
BY	**BEEF + LAMB NEW ZEALAND LIMITED** **Submitter**

EXECUTIVE SUMMARY OF DR MERRIN HAZEL WHATLEY
13 August 2019

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BACKGROUND

1. My name is Dr Merrin Whatley.

2. I am an independent contracting consultant. Since June 2018 (until present), I have been engaged by Beef + Lamb NZ and the Mid Northern North Island Farmer Council (MNNFC) as a Sub catchment Coordinator working in the Whangape and the Upper Pūniu sub catchments.

3. I have 15 years' experience working in the fields of Ecology and Rural Land Management, including two years with the Department of Conservation (DOC), seven years in academia and post graduate education in the Netherlands and three years with Auckland Council as a Land Management Advisor and then as a Senior Freshwater Specialist.

4. I provided a Brief of Evidence on behalf of Beef and Lamb New Zealand dated 5 July 2019.

5. I confirm the qualifications and experience set out in my Brief of Evidence.

6. I reconfirm that I have read the Code of Conduct for Expert Witnesses in the Environment Court's 2014 Practice Note and agree to continue to comply with it.

SCOPE OF EVIDENCE

7. I have been asked by B+LNZ to prepare evidence on the sub catchment Approach giving specific regard to the potential of community led catchment groups to develop effective catchment management plans and implement cost effective mitigations.

EXECUTIVE SUMMARY

8. A growing number of farmer-led catchment initiatives are forming around New Zealand. The formation of these groups signals that farmers wish to collaborate, share resources and identify practical solutions to work towards addressing the complex issues associated with a reported decline in water quality and catchment health throughout the country.

9. In the Waikato the formation of farmer-led sub catchments groups in Whangape and Upper Pūniu have been supported by a pilot extension

program, jointly developed by Beef + Lamb NZ, Farmers for Positive Change and the Mid Northern North Island Farmers Council (MNNIFC). Appointment of a sub catchment coordinator has enabled progressive steps to further support emerging groups in these two sub catchments.

10. The potential benefits of farmer and community-led sub catchment initiatives are wide ranging and multifaceted. If the approaches are developed to be truly collaborative pparticipants are more likely to have improved access to the four capitals; human, natural, financial/physical and social. Collaborative sub catchment approaches can strengthen social ties and networks.

11. Collaboration encourages the development and uptake of new technologies (e.g. nutrient budgets, deferred grazing, Land Use Capability, Farm Environment Planning and enhanced Farm Ecosystem Processes). New opportunities can emerge and be taken advantage of and collaboration between farmers and councils provides the opportunity for farmers to take the lead and take ownership of protecting the environment.

12. The Whatawhata Integrated Catchment Management Project (ICM) provides a clear example of the potential co benefits which can arise from collaborative models. Significant improvements where reported for the Whatawhata project, including an increase in the economic surplus of the pastoral enterprise (43%) concomitant to decreases in the export of suspended sediment (- 76%), total phosphorus (- 62%), and total nitrogen (- 33%). Improvements in water clarity, aquatic invertebrate community indices and stream temperatures were also associated with this initiative.

13. I support the inclusion of tailored, integrated sub catchment management plans within the objectives of PC1. Engaged communities are motivated to take responsibility and action to restore and protect their environment for the health and wellbeing of their waterways and community. A coordinated and integrated catchment management approach is necessary to allow rural communities to look beyond the impacts and mitigations related to individual contaminates allocated at the scale of individual properties.

14. The principal drivers recognised as having adverse effects on water quality and waterway health are wide ranging and include elevated nutrient levels, habitat degradation from loss of riparian habitats, altered and reduced flows, suspended and deposited sediment, pest species and changes to the hydrological nature of the river systems resulting from constructed dams, flood levees and draining wetlands.

15. A ‘one size fits all’, approach is unlikely to achieve improvements in water quality or the health and wellbeing of the Waikato River and its tributaries. In particular, policy seeking to support environmental, cultural and social outcomes should look to complement the inherent temporal and spatial diversity of rural communities and farming enterprises. Such measures will naturally facilitate expansion of ideas and technologies across sub catchment landscapes and hubs which encompass a diversity of geology, soil types, rainfall patterns, vegetation, stocking density and farm business structures.

16. Researchers and collaborators involved in catchment management groups have cited a number of factors influential to improving the success of collaborative ventures, including; local engagement, avoiding pressure as far as is reasonably practical, building trust and good relationships, respect and recognition, adopting a holistic integrated approach, credible commitment, strong effective leadership, and performance monitoring.

17. The development of integrated sub catchment management plans requires involvement and input from all parties potentially impacted by the implementation of the sub catchment plan. At a minimum this would require representation by farmer groups, iwi and/or local hapū, councils, and the relevant primary sector representatives.

18. Community leadership and support from an independent co-ordinator have been identified as key to encouraging farmer engagement in sub-catchment planning process in the Waikato River catchment.

19. Based on the principles and factors identified and compiled in the reports by Botha[1] and Hungerford[2], key aspects affecting the success of a sub catchment framework include; Build on existing community networks and social bonds; Equality of roles; Axillary support for groups; Conflict resolution; Defining the vision and goals for the sub catchment group; Project planning and time bound actions; Develop plans on a knowledge and information basis; Recognizing the importance of quick wins; Monitoring of progress and outcomes; Graduated sanctions; Nested enterprises and Mandating participation in the process.

20. Ecosystems experience temporal variations and farming is inextricably influenced by the same variations, relating to season, rainfall patterns and climate change. Flexibility is required to allow for adaptation of management systems and to achieve water quality and environmental outcomes.

21. Effective reduction of contaminant losses from sheep and beef farms is best achieved by identifying key contaminate pathways (Critical Source Areas (CSA)) and appropriate mitigations which are implemented through Farm Environment Plans focusing on maximum efficiencies[3,4]. Applying technologies, including Land Use Capability, decision support tools like MitAgator® and LUCIAg® can help facilitate on-going provision of ecosystem services.

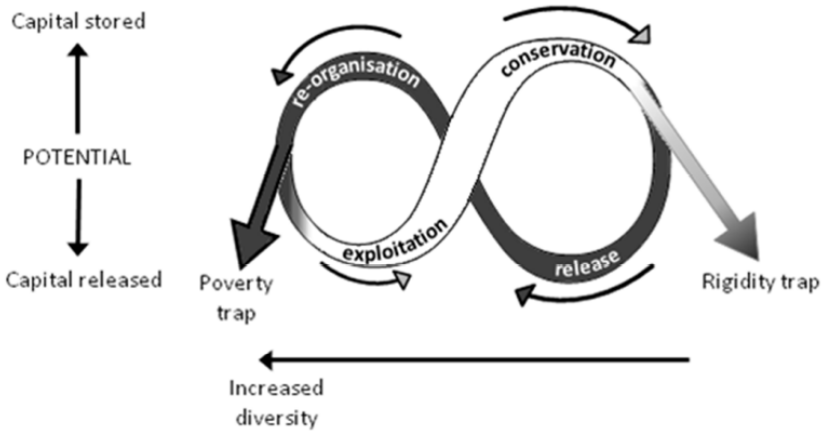
22. The complexity and interconnectedness associated with environmental collaborative frameworks benefits from a process of on-going evaluation

[1] Botha, N. (2019) The benefits and challenges of farmer-led, collaborative, sub-catchment policy methods and plans for consideration in the Waikato Catchment: A literature review. Report prepared for Waikato Regional Council by Botha Ltd.
[2] Hungerford, R. (2019). Evaluation report on sub catchment planning. Report prepared for Waikato Regional Council by momentum research and evaluation Ltd.

[3] Maximum efficiency from mitigations in the long-term are supported when they are; a) chosen on the basis of suitability to the farm; b) implemented on the basis of cost-effectiveness; and c) implemented in critical source areas, as reported by Dodd et al., (2016).
[4] Dodd, M.B., McDowell, R.W., Quinn, J.M. 2016. A review of contaminant losses to water from pastoral hill lands and mitigation options. *Hill Country – Grassland Research and Practice Series* 16, 137-148.

and adaptive management as proposed by Murray and Hasselman (2013)[5] as summarised in Figure 1.

Figure 1. Illustrates the adaptive management cycle of resources, conservation, release, re organisation and considered exploitation.



23. Sub catchment planning allows for adaptive management, tailored to local environmental conditions and farming enterprises. When mitigation approaches are applied via a top down approach, however, the key drivers of the issues can be overlooked and the symptoms, rather than the drivers, become the focus of attention.

24. For example, in-stream erosion can be a significant source of sediment to waterways. Essentially governed by the capacity of channel material to resist hydraulic and gravitational forces, the underlying causes of in-stream erosion can, however, be overlooked. Traditional mitigation techniques aimed at targeting in-stream erosion have focused on increasing the structural stability of eroding stream banks[6]. Yet, once stream banks are actively eroding, stock exclusion and riparian planting may not suffice to curb further erosion.

25. The B+LNZ sub catchment approach is guided by an eight stage process:

    1. identifying sub catchments and community leaders;

[5] Murray, A. and Hasselman, L. (2013). A solution to rigid government NRM planning requirements through adaptive management. Extension Farming Systems Journal. 9 (1), 290 – 296.
[6] Daigneault, A., Dymond, J., Basher, L. (2017). Kaipara Harbour sediment mitigation study: Catchment economic modelling. Landcare Research Contract Report: LC2905. 107 pp.

2. setting up freshwater ecological health monitoring;
3. developing a community plan;
4. completing an environmental plan;
5. developing a community sub catchment story;
6. completing Overseer modelling,
7. show and tell, and
8. reassessing the community plan

26. Catchments are complex, integrated systems. By incorporating local knowledge and understanding about seasonal landscape dynamics the sub catchment planning process can help identify the underlying causes of catchment issues and find solutions that work in-situ. Assessment of ecological functions (i.e. soil and site stability, hydrologic function and biotic integrity) can be simplified by selecting a set of discrete but complimentary indicators tailored to productive grassland ecosystems.

27. I support establishing simple networks of monitoring sites within sub catchments. Information gathered across sub catchments supports a process of continuous learning and provides the opportunity for farmers, schools, iwi, councils, researchers and rural professionals to share knowledge and resources. Enabling the sub catchment community to understand the drivers of health, well-being and prosperity in their sub-catchment, promotes the development and uptake of new technologies and increases the chance of achieving goals that go beyond improvements in water quality alone.

Dr Merrin Whatley
13 August 2019