

Before Independent Hearing Commissioners
At Hamilton

In the matter of the Resource Management Act 1991

And

In the matter of the hearing of submissions on Proposed
Plan Change 1 to the Waikato Regional
Plan

**Statement of primary evidence of
Dr John Stanley Bircham
for
Charion Investment Trust (Submitter 71344)
and
Fletcher Trust (Submitter 73848)**

3 May 2019

Presented by:

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Evidence for Charion Investment Trust & Fletcher Trust for submissions on Proposed Plan Change 1 to the Waikato Regional Plan

1. Background

- 1.1. My name is John Stanley Bircham, B.Agr.Sc. (1968), M.Agr.Sc.-Hons (1974) Massey University, Ph.D. (1981) University of Edinburgh
- 1.2. I was a NRAC (National Research Advisory Council) Scholar 1978-81.
- 1.3. Employment:
 - 1.3.1. Soil Conservator (1968) employed by the now defunct Water & Soil Division of the Ministry of Works
 - 1.3.2. Research Scientist – Grazing Systems Ecology and Farm System Modelling - (1969-84) for the Agricultural Research Division of the Ministry of Agriculture & Fisheries (Wairarapa, Ruakura & Whatawhata).
 - 1.3.3. Self-employed (1985 - present) as a farm consultant and system developer; risk assessment, risk framework developer and implementer; risk management and resilience, consultant, lecturer and trainer in New Zealand and Internationally.
- 1.4. Key Achievements/Activities:
 - 1.4.1. Understanding of the pasture - animal interface, and in particular the dynamics of pasture growth and animal grazing behaviour and its impact on pasture and animal productivity.
 - 1.4.2. Development and use of modelling techniques to:
 - (i) advance knowledge/experience, and
 - (ii) underpin management/governance decision-making.
 - 1.4.3. Member of the editorial committee for the Australian and New Zealand Standard (AS/NZS 5050:2010) for Business Continuity – Managing Disruption-Related Risk.

- 1.4.4. Developing and implementing risk, incident, compliance self-assessment and infrastructure criticality assessment and management systems for Australian State agencies and businesses.
- 1.4.5. Presenting and teaching at conferences/seminars in New Zealand, Australia, United Kingdom, Switzerland, Canada, Singapore and Malaysia, on all aspects of risk assessment, risk management and, organizational and system resiliency.
- 1.5. I have some unique skills and expertise in temperate grassland farming and the business world.
- 1.6. During the last 4 years, in conjunction with Charles Fletcher and his family farm at Whakamaru, I have been developing modelling software for farming systems, which is in the nature of a flight simulator.
- 1.7. Once the farm data, including location and system, have been set up the farmer or an advisor can run future scenarios to simulate outcomes for the farm according to various parameters; e.g. wet winter warmer than normal, dry summer hotter than normal.
- 1.8. The results give the farmer a platform upon which to base forward thinking strategic decisions on stock numbers, feed requirements, production outcomes, etc.
- 1.9. This software is not yet commercially available but has been rigorously tested and I am happy that it contributes something to the farming community that is not presently available. My intention is that it be integrated with other software so that there is no need to “reinvent the wheel” where others are doing some great work e.g. Overseer.
- 1.10. As a result of my recent work and my expertise, I have been asked to contribute to this hearing process.
- 1.11. I have not assumed a role as an expert witness and I am in the hands of the Hearing Commissioners as to how my views are to be

considered, as they are independent of the parties for whom I am giving this evidence.

2. Proposed Waikato Regional Council Plan Change 1

Schedule 1 – Requirements for Farm Environment Plans

A Farm Environment Plan shall be prepared in accordance with the requirements of A below. The Farm Environment Plan shall be certified as meeting the requirements of A by a Certified Farm Environment Planner.

A. Farm Environment Plans shall contain as a minimum:

1. The property or Enterprise details:

2. An assessment of the risk of diffuse discharge of sediment, nitrogen, phosphorus and microbial pathogens associated with farming activities on the property, and priority of those identified risks, having regard to sub-catchment targets in Table 3.11.1 and the priority of lakes within the sub-catchment. As a minimum, the risk assessment shall include (where relevant to the particular land use):

(a) A description of where and how stock shall be excluded from water bodies for stock exclusion, including:

(b) A description of setbacks and riparian management, including:

(c) A description of the critical source areas from which sediment, nitrogen, phosphorous and microbial pathogens are lost, including:

(d) An assessment of appropriate land use and grazing management for specific areas on the farm to maintain and improve the physical and biological condition of soils and minimise the diffuse discharge of sediment, nitrogen, phosphorus and microbial pathogens to water bodies, including:

(e) A description of nutrient management practices including a nitrogen budget for the far enterprise using the model Overseer in accordance with the Overseer use protocols, or using any other model approved by the Chief Executive Officer of Waikato Regional Council.

(f) A description of cultivation management, including:

3. Comment on Proposed Waikato Regional Council Plan Change 1, Schedule 1 – Requirements for Farm Environment Plans

3.1. The objectives of a Farm Environment Plan include:

- 3.1.1. Identification of sources of diffuse discharge of sediment, nitrogen, phosphorus and microbial pathogens.
- 3.1.2. Assessment of the risk of diffuse discharge of sediment, nitrogen, phosphorus and microbial pathogens to water bodies.
- 3.1.3. Prioritisation of risks having regard to their severity and likelihood and to sub-catchment targets.
- 3.1.4. Implementation of actions in accordance with the priorities, having regard to sub-catchment targets.

3.2. Implicit in any “Risk Assessment” are three steps:

- 3.2.1. Establishment of the context and scope,
- 3.2.2. Identification of risk,
- 3.2.3. Assessment of the potential severity of impact and probability of occurrence.

3.3. In respect of 3.2.3 above, the provisions of Section 2:

- 3.3.1. Assume a context that embraces all farm activities that could cause diffuse discharge of sediment, nitrogen, phosphorus and microbial pathogens and the sub-catchment targets.
- 3.3.2. Identify likely sources of diffuse discharge.
- 3.3.3. But fail to provide guidance on the measurement or estimation of severity of consequence and likelihood of occurrence.

3.4. The Farm Environment Plan Guide (June 2018) states the following in its explanation of “Risk-Based-Approach” (page 19) to the development of Farm Environment Plans.

- 3.4.1. *“Risk is the product of (a) the potential impact of contaminants, (b) the scale of contaminant loss and (c) the likelihood of contaminants being ‘lost’ to the environment. “*
 - 3.4.2. Distance to and/or ease of access to waterways and farm biophysical features (soil type, slope, aspect and rainfall) are the principal determinants of the likelihood of contaminants being “lost” to the environment.
 - 3.4.3. *“There is an expectation that the Certified Farm Environment Planner will utilise their **professional judgment** and work with the landowner to better understand their property when making the required assessments, using Figure 1 alongside the Farm Environment Plan template as a guide.”*
 - 3.4.4. *“The matrix assesses the potential impact of losses of contaminants in comparison with the likelihood that these losses occur. For example, a stream crossing at the bottom of a slope might be considered to have a moderate impact of contaminant loss, but the likelihood of contaminant loss is often and therefore the overall assessment is high risk.”*
- 3.5. As it stands Section 2 is an unordered mix of information and requirements:
- 3.5.1. Sections 2 (a) and 2 (b) outline requirements for conformance.
 - 3.5.2. Section 2 (c) outlines potential sources of sediment, nitrogen, phosphorus and microbial pathogen discharge that should be included in a Farm Environment Plan risk assessment.
 - 3.5.3. Section 2 (d) outlines farm-management risk treatments that could reduce/minimise the diffuse discharge of sediment, nitrogen, phosphorus and microbial pathogens.
 - 3.5.4. Section 2 (e) provides background information and context to the risk assessment process.
 - 3.5.5. Section 2 (f [i] & [ii]) outline requirements for conformance.
 - 3.5.6. Sub-sections (ii [e] & ii [f]) of Section 2 are potential sources of risk that are more aligned to the content of Section 2 (c): ‘Critical sources areas from which sediment, nitrogen, phosphorus and microbial pathogens are lost.’

**4. Review/Restructure the Methodology and Content of Schedule 1
- Farm Improvement Plans**

- 4.1. In the absence of realistic (not just subjective) measures of severity and estimates of likelihood, prioritisation of risk treatment actions is problematic and subject to, amongst other things, the limitations and bias of “bounded rationality.”
- 4.2. Longitudinal assessments of risk are also jeopardised in the absence of realistic measures and estimates of severity and likelihood of risk.
- 4.3. Review/Restructure of Farm Environment Plans to include the:
 - 4.3.1. Establishment of an explicit context for a farming enterprise inclusive of, the farm system employed, the intensity of the farming system, land and plant resources (soils, pastures & crops), nutrient management practices, infrastructure, climate, proximity and/or ease of access to waterways and sub-catchment water bodies, managerial and labour capability, etc.
 - 4.3.2. Restructuring of the Farm Environment Plan requirements in a manner that (i) embraces all aspects of the “Risk Management” process, which in essence is what a Farm Environmental Plan is, a farm’s environment risk management plan, and (ii) separates risk assessment requirements from requirements for compliance and risk treatment.
 - 4.3.3. Underpinning of risk assessment requirements with guidance on the measures to be used to determine the severity of consequence and the estimation of likelihood. This guidance should be publicly available.
- 4.4. If it is not possible, irrespective of the reason, to underpin the assessment of severity and likelihood of risk with non-subjective guidance, then consideration should be given to:
 - 4.4.1. Including provisions that allow landowners:
 - 4.4.1.1. To contest in a formal and structured manner the findings and requirements of a Certified Farm Environment Planner.

- 4.4.1.2. To seek clarification and relief through independent review and mediation.
- 4.4.2. Adopting an alternative approach to Farm Environment Plans, their development and monitoring.

- 4.5. Give landowners the right to develop their own Farm Environment Plan using templates provided by the Waikato Regional Authority, which are then reviewed and evaluated by a Farm Environment Plan Mediator.
 - 4.5.1. The responsibilities of a Farm Environment Plan Mediators to include:
 - 4.5.1.1. The review and evaluation of the proposed Farm Environment Plan, and in particular: the risk assessment process and findings, the prioritisation of risks, and the recommended risk treatments/actions and timelines for implementation.
 - 4.5.1.2. Mediation, should that be required, in respect of the actions required and the timelines for their implementation.
 - 4.5.1.3. Ensuring that the plan meets the requirements for a Waikato Regional Council Farm Environment Plan.

- 4.6. Should the landowner choose to not develop their own Farm Environment plan, a Certified Farm Environment Planner will be required to develop a plan on the landowner's behalf.

- 4.7. All Farm Environment Plans, irrespective of whether developed by a landowner or a Certified Farm Environment Planner, to be subject to review and evaluation by a Farm Environment Plan Mediator.

I intend to appear and give oral evidence which expands on this summary.

Dr JS Bircham

3 May 2019