BEFORE THE INDEPENDENT COMMISSIONERS

IN THE MATTER	of the Resource Management Act 1991
AND	
	IN THE MATTER

REBUTTAL EVIDENCE OF ALISON DEWES ON BEHALF OF THE NEW ZEALAND FISH AND GAME COUNCIL
21st of MAY 2015

ANDERSON LLOYD
LAWYERS
QUEENSTOWN

Solicitor: M Baker-Galloway
(maree.baker-galloway@andersonlloyd.co.nz)

Level 2,
13 Camp Street,
PO Box 201,
QUEENSTOWN 9348
DX ZP95010
Tel 03 450 0700
Fax 03 450 0799

QUALIFICATIONS AND EXPERIENCE

1 My full name is Alison Mary Dewes. My qualifications and evidence were set out in my Evidence in Chief (EiC), dated 7th of May 2015.

2 In preparing this rebuttal evidence I have reviewed:

(a) The reports and statements of evidence of other experts giving evidence relevant to my area of expertise, including:

(i) Susan Cumberworth – RDRML

(ii) James Ryan – Dairy NZ

(iii) Mark Neal – Fonterra and Dairy NZ

(iv) Neil Thomas - BCIL

3 I have again prepared this evidence in compliance with the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2011.

4 The particular points that I consider it useful for me to rebut are set out below.

EVIDENCE OF SUSAN CUMBERWORTH

5 Susan Cumberworth gives a detailed background of Farm Environment Plans (FEPs) and Audited Self Management (ASM)[1] and the FEPS and ASM scheme proposed for RDRML[2]. Cumberworth states, "*RDRML have developed an Environmental Management Strategy outlining their environmental goals, objectives and targets, under which a Scheme Management Plan will describe their operational processes including auditing, compliance and enforcement processes*"[3]. While I agree that in some cases FEPs can be of use to raise awareness in regards to good farm management practices including nutrient budgeting, I do not agree that application of FEPs, in the absence of mandatory requirements to achieve output based standards

[1] Cumberworth, EiC paragraphs 15-18
[2] Cumberworth, EiC paragraphs 29-32
[3] Cumberworth, EiC paragraph 30

such as nitrogen leaching standards, will achieve the desired result of reaching load targets, and achieving environmental outcomes. In the example given by Susan Cumberworth[4], RDR are required to achieve a nutrient limit which is included as a condition of consent, which is enforceable by the Regional council. However, it is unclear if the nutrient limit is linked to an environmental outcome such as improving water quality.

6 Without a legitimate catchment solution that will deliver, with reasonable certainty, a water quality outcome such as improving water quality, farmers will be uncertain as to how much they need to do to achieve legitimate change. This results in both business uncertainty and inequity issues due to inefficient resource allocation, and differing levels of mitigation uptake by farmers within the catchment. In my experience, some farmers will tend not to want to adopt mitigation which is seen to be overly expensive or risky, while others will adopt significant mitigation strategies simply because it is the "right thing to do." Without a framework which is equitable across land uses in regards to the establishment of goal orientated standards, early adopters will do more than their fair share, and "free riders" will do less than their fair share (29 Day et al v Manawatu Wanganui Regional Council Decision No [2012] NCEnvC 182, paragraph 5-133). This results in inequitable outcomes for all concerned and potentially further degradation of freshwater resources.

7 Farmers are unlikely to make voluntary changes to their farm businesses and management operations when there is no degree of certainty over the amount of change required, a requirement for similar mitigations and changes to practice from their peers, and whether reductions in contaminant losses will lead to legitimate and improved ecosystem health.

8 Farm Environment Plans and audited self management, in my view, protect business as usual as discussed in my EiC[5], and on their own do not achieve environmental outcomes including improvements in water quality, if there is no requirement within FEPs and through ASM to manage to specified limits. Further intensification, even where it is undertaken in accordance with a FEP and ASM, can result in increasing contaminant losses from the land to freshwater

[4] Cumberworth, EiC paragraph 28
[5] Dewes, EiC paragraphs 88-90

EVIDENCE OF JAMES RYAN

9 James Ryan seeks to promote the use of Sustainable Milk Plans (SMP's). Ryan states, "Sustainable Milk Plans will help improve nutrient management on dairy farms in the catchment by creating a farm specific, practical plan that helps landowners to focus on the actions that are essential to minimise their environmental footprint."[6] I have significant reservations as to the validity of these claims and am unconvinced of a SMP's ability to deliver the degree of farm system change required in the Hinds/Hekeao Plains area.

10 Sustainable Milk Plans develop a summary of a farm's environmental shortcomings and achievements in its current state. Advice is provided to the farmer, from private consultants and industry representatives regarding the remediation of any farm practice or farm management issues, such as nutrient budgeting, effluent and irrigation management.

11 From what I have observed, voluntary methods of change implementation are ineffective. They have a tendency to under-deliver and it is simply too easy for farmers to disengage with the process. An example of this is the Sustainable Dairying Water Accord (formerly the Clean Streams Accord), which has routinely failed to reach its performance milestones.

12 In my experience, Sustainable Milk Plans in their current state will not provide whole farm systems support, which is often required to enable a farmer to reconfigure their farming business and management approach in order to reduce economic risk and raise environmental performance. Sustainable Milk Plans seek to remediate environmental impact by addressing single aspects of farm management (e.g. effluent management, fertiliser management), most of which are already included in good management practice. They do not provide any financial analysis nor seek to understand how the farm system could be re-configured as a whole to maximise profit whilst operating within nitrogen and environmental limits. To achieve the degrees of reduction in nutrient loss on many farms under this proposed plan change, a far more in-depth approach will need to be taken with farm performance analysis and system reconfiguration.

[6] Ryan, EiC paragraph 4.5

13 Sustainable Milk Plans are therefore best served as an awareness tool and an information gathering tool on farm performance in regards to good management practices. In my opinion they should not be relied upon to deliver whole farm planning solutions nor are they a solution for catchment-wide reductions in contaminant losses such as Nitrogen loss which may be required to deliver environmental outcomes.

EVIDENCE OF MARK NEAL

14 Mr Neal proposes that farmers are carrying too much debt to give them flexibility in mitigation options[7]. On this basis, Mr Neal proposes that mitigation requirements should be reduced, including reducing the reductions on nitrogen losses from 45% to 36%[8], and be extended over a greater time period due to the pressure from debt on these businesses[9].

15 Mr Neal's proposal is that because of weak balance sheets and over- indebted farm businesses[10], mitigation of adverse environmental effects cannot occur, and that the economic fragility of farming businesses in the catchment is reason to weaken requirements for those farmers to internalise their externalities[11] (account for the pollution which results from the operation of their businesses), is flawed in my view. Mr Neal's proposition fails to account for the overarching point that many of these businesses are "fragile" as a result of over indebtedness and loss of farm business resilience before any mitigation requirements or/and environmental limits are placed on them. Failure to now account for environmental constraints, or requirements that farmers internalise the pollution which result from their businesses, will just continue to result in unsustainable land use development and land use, and fail to establish management frameworks which promote sound business investment and development.

16 The core of the argument that Mr Neal overlooks, is that these farming businesses were not resilient in the first place – as already highlighted in many previous Dairy NZ reports. A report by Sam Howard in Selwyn Waihora showed that a recent study conducted by Dairy NZ using a mix of dairy base data and a phone survey on 80 farms in Canterbury for the purposes of modelling nutrient loss reductions (Howard

[7] Neal, EiC paragraphs 3.1, 3.4, 5.13 to 5.19, 6.3, and 8.2
[8] Neal, EiC paragraphs 3.5, 5.24 and 9.12
[9] IBID
[10] Neal, EiC paragraph 3.4
[11] Neal, EiC paragraphs 5.16 and 5.19

2012), looked at the implications of nutrient loss limits on businesses. This study used information from a qualitative phone survey and dairy base data.

17 The study by Howard et al (2012) showed that 38% of farm businesses in the survey could not meet their financial obligations at a $6.00 kg MS payout (Table 10 Page 58: Drawings were accounted for through imputed labour.) This fragility was not related to resource constraints.

18 However, while Neal models sensitivity to debt (but does not provide his methodology in Table 1, page 8 of his EiC), he fails to model sensitivity to milk price[12]. This is concerning as sensitivity to milk price is the biggest impact on solvency of a business, and the EBIT. Milk price fluctuations which are now the new norm are far more likely to impact economically fragile farming businesses negatively due to the very nature of the fact they are "already fragile," than requirements to account for pollution from the farming business to achieve environmental improvements. A change of $1.00 in milk price can lead to a 100% change in ROC (Agfirst 2009) and is a far more significant influence on farm solvency as noted by Neal as being of critical importance in paragraphs 3.4, 5.16 and Tables 3-4 -5 where his argument is based on the challenge of debt constraining the dairy sectors ability to mitigate its effects.

19 The study by Howard et al (2012) serves to illustrate the high degree of vulnerability of dairy business in the Canterbury region, and brings into focus what has been a permissive lending regime by banks in the most recent decade.

20 Mr Neal does not model a range of milk prices and describe their economic impact. Instead he uses an average of $6.61/kg MS (including dividend) derived from a 5-year average[13]. Using average milk price masks the true effect of milk price volatility and the ensuing vulnerability of the businesses.

21 I have included Table 1 below which highlights the degree of milk price fluctuations over past 14 years and note the average, and volatility of milk prices over this period (33 % fluctuation between years is the new norm, as compared with 15% in the preceding 8 years). This highlights the need for businesses to be economically

[12]Neal, EiC footnote 7
[13] Neal, EiC Table 1

resilient and have comparatively strong balance sheets, in order to remain economically viable under different milk payout regimes.

Table 1: Milk price fluctuations (Fonterra) 1998 to 2014

$/kgMS		**Milk**	**Dividend**	**Total**	**% change between years**
		$	$	$	%
1998-99				3.58	
1999-00				3.78	5.6%
2000-01				5.01	32.5%
2001-02				5.35	6.8%
2002-03		3.34	0.29	3.63	-32.1%
2003-04		3.97	0.28	4.25	17.1%
2004-05		4.37	0.22	4.59	8.0%
2005-06		3.85	0.25	4.1	-10.7%
2006-07		3.87	0.59	4.46	8.8%
2007-08		7.59	0.07	7.66	71.7%
2008-09		4.75	0.45	5.2	-32.1%
2009-10		6.1	0.27	6.37	22.5%
2010-11		7.6	0.3	7.9	24.0%
2011-12		6.08	0.32	6.4	-19.0%
2012-13		5.84	0.32	6.16	-3.8%
2013-14		8.4	0.1	8.5	38.0%
2014-15		4.4		4.4	-48.2%

22 Table 1 highlights the nature of the volatility of commodity prices, which is not unlike the volatility of the payouts extensive pastoral and arable sectors have had to deal with for many years, and reinforces the need for farming businesses to have strong balance sheets and be economically resilient in order to be able to ride through rough or difficult years.

23 The notion of resilience recognises the ability to respond from disturbance and the imprecise nature of the future. Holling an ecologist (1973) notes that management

approaches based on resilience emphasise the need to keep options open. The resilience framework requires systems that can absorb and accommodate further events in whatever unexpected form they may take. Resilience in business eludes to risk management while sound enduring profit is made. As it relates to dairy farming, for example, it includes provision for unexpected events, accounting for volatility in feed availability, costs, milk price, climate, and resource availability. For farming in essence this could also mean that a stable enough return is able to be generated while achieving a return on capital over time that is greater than the cost of borrowed capital so that the core equity of the business is not being eroded as unexpected events occur.

24 Mr Neal uses the phrase resilience (from ecology), but tries to explain resilience[14] as Farmer (financial) resilience to adverse climatic or market conditions, and attempts to demonstrate that resilience is achieved when a farm receives cash surpluses less often[15], but he fails to recognise that unexpected changes in the wider ecological (biophysical) landscape and resource base also occur over time, such as resource degradation and subsequent clawback of resource overallocation.

25 Historical lending regimes have failed to take into account volatility in commodity pricing, resource constraints, climatic variation and policy change. As a result, many recently developed dairy businesses are vulnerable or "fragile" even before they are faced with pressure to mitigate their externalities. It is not the resource constraint that makes them fragile. They were fragile anyway.

26 The key issue at stake is the loss of resilience and fragility of the dairy sector due to the over indebtedness rather than the argument of loss of business viability under tightening resource constraints. A point which is not addressed by Mr Neal.

27 Therefore, I do not agree with Neal defending the position that farmers will become unviable as a result of having to adapt to resource constraints[16] as he has failed to highlight the fragility of the business models to begin with. Furthermore, Mr Neal fails to consider the risks associated with the continued "business as usual development model" in relation to the proposed further intensification of 30,000 ha in the Hinds/Hekeao catchment, which is currently significantly overallocated in regards to

[14] Neal, EiC paragraphs 8.1 and 8.2
[15] Neal, EiC paragraph 8.2
[16] Neal, EiC paragraph 8.4

contaminant losses from current farming, which in my opinion raises far more risk for current farmers as they will not only have to account for their own pollution but also the pollution from new farming businesses or further intensification[17] in a catchment that has already overshot ecological limits.

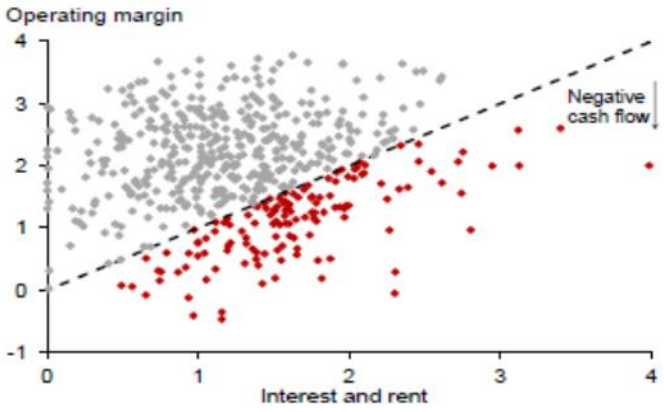
28 The situation, as in Canterbury where there is a high proportion of businesses carrying excessive debt, has resulted from the notion that growth can occur with no limits and as a result, conversions to dairy for capital gain purposes has occurred, largely driven by the increased equity growth as more resources have been captured by private ownership.

29 Sound business investment should have been based on the ability to demonstrate a robust return on capital (ROC) without risk of equity loss at a range of milk and feed prices, unexpected climatic conditions or resource constraints, and internalisation of the costs of the pollution which results from the business.

30 The current farming model (of continued growth and over indebtedness) in Canterbury, based on the notion that ecosystem services have infinite assimilation capacity, has proven to be risky and in the latest report from RBNZ shown in point 31 below, is evident that even at a $5.70 income (the back pay from 2014 into the 2015 season of $4.50), around 25% of farmers fall into negative cash flow (i.e. the cost of debt servicing and milk solid production is > $5.70).

31

Figure C2 Estimated farm cash flows *(dollars per kgMS, 2014-15 season)*



Source: DairyNZ.

Note: Operating margin refers to milk and livestock income less working expenses. Farms below the dashed line (in red) are estimated to be facing negative cash flows in the 2014-15 season.

[17] Dewes, EiC paragraphs 21-25

32 It is important to note that at $4.40/kg payout as the closing price for 2014, and the Fonterra opening price of $3.66 as projected for 2015- 16, the risk of farmers falling into negative cash flow will be significantly worse. It is now more likely that greater than 50% of dairy farms will be facing a period of prolonged negative cash flow over 2014-2016. This is a result of commodity price fluctuations impacting on their business. Current business fragility is thus not a result of tightening resource constraints and pending mitigation requirements.

33 Dewes (2014) found that more intensive dairy systems carry more cow bodyweight per hectare, are more dependent on bought-in feed, and have higher environmental impacts, such as Nitrogen leaching. While these businesses can perform comparatively strong in years of high milk prices, these systems are more vulnerable to fluctuations in milk price, and become economically risky as the milk payout drops. Furthermore, as they result in increased environmental risk, they require more advanced mitigation strategies when environmental limits are imposed (e.g. herd home systems, stand-off pads, supplementary feeding and advanced effluent management systems). These systems, therefore, will potentially require higher capital investment to mitigate their impacts on the environment, which can potentially increase their business debt and consequently compound an already risky business model.

34 As discussed in my EiC[18] there are numerous examples of farmers and studies reducing Nitrogen loss by 20-60% in both actual and observed cases. In terms of possible improvements in management practices, there are a range of mitigations and changes to farming practices that can have a significant effect on achieving water use efficiency, and reducing contaminant losses to water including N and P losses.

35 In my opinion material reductions in leaching can be made while a farm remains profitable, and by 2023/2024 there is likely to be an even better understanding of how farms can be optimised. The move to “active management” for irrigation scheduling, for example, is a key mitigation delivering 30 – 50% reductions in Nitrogen leaching. This has the potential to address some of the current water quality and quantity challenges. The top 10% of farmers are presently doing this. More advanced

[18] Dewes, EiC paragraphs 26-28

mitigations, when integrated into a whole farm system, incur capital costs to implement; however, they can also have significant benefits. Including increased productivity, improved efficiencies and corresponding profitability benefits if a farm system is optimised.

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