

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of the Proposed Waikato Regional Plan Change
1 – Waikato and Waipa River
Catchments (“Proposed Plan or PC1”)

AND

IN THE MATTER of submissions and further submissions by Oji
Fibre Solutions (NZ) Limited

**STATEMENT OF PRIMARY EVIDENCE OF FRANCIS GORDON
SCRIMGEOUR ON BEHALF OF OJI FIBRE SOLUTIONS (NZ) LIMITED
FOR HEARINGS PARTS A AND B**

15 FEBRUARY 2018

EXECUTIVE SUMMARY

1. As an economist, it is my opinion that;
 - (a) There is scope to reform PC1 so that it is more efficient and equitable. This includes efficiency through time and not just at a point in time;
 - (b) Plan Change 1 should be focused on the environmental effects of management choices and not be focused on sustaining existing patterns of production;
 - (c) Grandparenting of nitrogen emission rights is inefficient and inequitable;
 - (d) A regulatory approach incentivising best management practices will increase the rate of improvement in environmental quality while reducing the adverse wealth effects associated with regulation;
 - (e) A regulatory approach based on clear and feasible expectations reduces costs to both Waikato Regional Council and land owners;
and
 - (f) The Waikato Regional Council should undertake decision-relevant economic analysis to inform decision-making and in preparation for the second decade of Healthy Rivers policy and plans. This should be explicit about the benefits and costs of different choices. It should also provide multiple equity metrics that together inform consideration of the fairness of cost allocation to different parties.

INTRODUCTION

2. My full name is Dr Francis Gordon Scrimgeour.
3. I hold a Bachelor of Agricultural Science with 1st Class Honours from Lincoln College (1977) and a PhD from the University of Hawaii at Manoa (1989).
4. I am a Professor of Economics at Waikato University. I am also Head of the School of Accounting, Finance and Economics.
5. Since 1997, I have held leadership positions at the University as a Chairperson of Department, Associate Dean, Dean, Director and Head of School while maintaining an active programme of research.
6. During the last 30 years, I have regularly completed commissioned research reports for international agencies, Government Departments, Local and Regional Government, private sector firms and industry organisations.
7. I am the editor-in-chief for the *Australian Journal of Agricultural and Resource Economics* (2017-2020) and a former *Editor of New Zealand Economic Papers* (1998-2001). I am a past president and life member of both the New Zealand Agricultural and Resource Economics Society and The New Zealand Association of Economists. I am a Fellow of the Modelling and Simulation Society of Australia and New Zealand.
8. I am a regular referee of research papers for leading economics journals. I have participated in panels to review business school research across Asia, Europe and the Americas. I have reviewed research programmes for MBIE and Crown Research Institutes.
9. The focus of my research is on the economics of agriculture, economics of the environment, regional economics and financial economics.
10. In preparing my evidence, I have specifically examined the following documents that form part of the background information to PC1:
 - (a) PC1;
 - (b) The Section 32 Report and the Section 42A Report;

- (c) The reports produced by the Technical Leaders Group (including economic reports TR2018/47; TR2018/48; TR2018/49; TR2018/52; TR2018/55; TR2018/57; and TR2018/59); and
- (d) Historic economic research completed at the University of Waikato since 1990 focused on improving water quality in the Waikato River.

EXPERT WITNESS CODE OF CONDUCT

- 11. Although this is not an Environment Court hearing, I have read and am familiar with the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2014. I agree to comply with that Code. Other than where I state that I am relying on the advice of another person, this evidence is within my area of expertise and I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

PURPOSE AND SCOPE OF EVIDENCE

- 12. I have been engaged by Oji Fibre Solutions (NZ) Limited.
- 13. My evidence focuses on the potential for PC1 to be reformed to make it both more efficient and more equitable so that it achieves its purpose in a shorter time period and with less harm to the economy and community. I understand that purpose is to achieve the Vision & Strategy of the Waikato, of a healthy river sustaining abundant life and prosperous communities.

ECONOMIC PRINCIPLES

- 14. As a regular reviewer of economic scholarship and policy documents, I focus on three elements. Firstly, I check that the relevant theory is applied in an appropriate way. Secondly, I check whether the empirical evidence is built on robust data and analytical methods; and thirdly I check that the implications for management and or policy decision-making are consistent with the analysis and relevant to the decision context.
- 15. In reviewing the theory, empirical analysis, and implications, I review the validity of the evidence in the light of disciplinary textbooks, scholarly journal articles, professional reports, and my own experience based on 30 years of research.

16. Even the best forms of analysis have their limitations. High quality analysis provides a more robust understanding of how the economic-environmental-social system works and its probable responses to policy, regulatory, technological and other changes.
17. It is possible for environmental policies and rules to achieve environmental outcomes in a, more or less, cost-effective manner. A major determinant of cost-effectiveness is whether the policies or rules facilitate dynamic efficiency and participants in the economy adjusting their production choices in response to changes in technology, prices, and policies. Where policies and rules are poorly designed, economic agents are slow to adjust to the desired outcomes or they act in perverse ways that undermine the intent of the policy or rule. The challenge of the analyst, adviser and decision maker is not to predict the outcome of a policy or rule today but to predict the outcome after economic agents have adapted in response to the policy or rule change.
18. Inefficiency imposes costs within a specific time period (income and expenses). It also impacts the value of assets and balance sheets. These wealth effects should be considered, but it is important to distinguish between where there is a transfer of wealth and a diminishment or increase in wealth. Increases in net costs hurt agents but wealth losses have long term impacts on families and communities. It is also appropriate to recognise depreciation and the fact that some changes that occur through time may have a lesser effect than initially expected because the assets were depreciating anyway.

INEFFICIENCY OF PLAN CHANGE 1

19. My analysis of PC1 identifies significant inefficiencies associated with the approach taken and rules selected.
20. Regulation equates to a cost, in essence a 'cost of sales'. Therefore, in this case regulatory efficiency is achieved when regulation results in the efficient improvement in water quality for a given level of economic cost, now and into the future. Lessening economic cost now by use of regulation that incentivises environmentally perverse behaviour and investment detracting from future pollution reduction goals is not efficient and not sustainable. The 'cost of sales' associated with achieving

acceptable water quality has eventually to be internalised too, and justified by, the investors in impactful resource use.

21. The potential pollution loading varies by biophysical characteristics, land use, and management practice. This suggests that to be efficient the plan must effectively impact the choices of all land managers at the level of the business, and be consistent with sub-catchment and catchment goals. It is important to understand and implement best management practices that are relevant in specific locations and are associated with specific land uses. Resource use associated with greater adverse effects must face higher regulatory costs. It therefore follows that property owners operating in areas with less natural assimilative capacity must be less intensively used or have greater mitigation interventions for the same level of impact. The higher the value of the good produced the greater the mitigation expenditure that can be justified. Regulations to facilitate environmental outcomes that cause additional costs, reduce land values. However, regulations focused on implementing best management practices result in effective avoidance and mitigation expenditures and a lower reduction in land values.
22. Waikato Regional Council implicitly recognises the inherent differences in optimal management within a sub-catchment given their Freshwater Management Units and their specific requirements in the Taupo sub-catchment. Further, the water quality data is collected in more than 60 locations and the information at each location is relevant to the sub-catchment as well as the river system as a whole. Given this investment by the Council, ideally it is appropriate that best management practices are specified and employed to achieve the sub-catchment and catchment goals.
23. Efficiency is enhanced when there is alignment between different policies. PC1 recognises that achieving water quality restoration requires land use change to lower discharges (eg through reforestation) but there is a lack of clarity about future harvest rights for these if they are planted.¹ Further, existing climate change policies intersect with PC1 and it is not clear how Waikato Regional Council intends them to align.

¹ PC1 page 15, para 1.

24. It does not appear that adequate account has been given to the effect on land price of grandfathered “Nitrogen Reference Points (NRP) and related regulatory limits. The probability of economically rational investors purchasing land at capital values commensurate with a grandfathered NRP and then investing in a manner that puts that value at “sovereign risk” by reducing stock loadings or planting trees is low.
25. The economic analysis prepared in support of PC1 is limited to a consideration of the proposed regional regulatory changes. Like much modelling the author has had to assume that all other factors remain the same. In reality other factors can and will arise, for example the reasonable assumption of a higher cost on agricultural GHG emissions in the future, an outbreak of some cattle disease, market shifts away from reliance on imported supplements such as PKE, or an increase in veganism.
26. PC1 identifies that land use change may result in harmful effects on the river. PC1’s regulation of land use change appears to be aimed at preventing land use change rather than preventing environmental degradation. This approach does not facilitate environmentally beneficial change.
27. The challenge for regulators is to eliminate harmful change without unnecessarily harming economic and community wellbeing. There should be consistent regulatory expectations that incentivise all landowners to avoid or minimise the adverse effects of their preferred land use in direct proportion to the risk of harm. A regulatory framework that incentivises rather than discourages improvement, particularly where coupled with the expectation that acceptable mitigation options will change as understanding and technology improves, is dynamically efficient. It does not lock activities into a pattern of production which is no longer optimal and which does not align with contemporary markets.
28. Grandfathering pollution rights and the distortion of the capital value of land associated with those gifted rights is economically sub-optimal and environmentally perverse. Efficiency suggests that PC1 should abandon grandparenting of nitrogen emission rights. Although grandparenting appears to facilitate transition, it slows the process down and leads to properties with comparable biophysical situation having different emission

rights and therefore land values. This is not efficient as the grandparenting has a direct economic cost on other land users proportional to the benefit accruing to the high nitrogen emitters.

29. The achievement of improved environmental outcomes is enhanced by effective use of agency staff and expertise. The proposed Plan Change will involve considerable staff time in unnecessary decision-making pertaining to land use change (e.g. transition from pastoral land to cropping use as part of a long term rotation), and arising from the necessity of interpreting subjective and variable "Farm Environment Plan" obligations on a property by property basis. Economic efficiency is better achieved where regulators are focused on strategic monitoring and enforcement.

INEQUITY OF PC1

30. PC1 is inequitable in several ways.
31. PC1 penalises low nitrogen users by limiting the production-related capital value of their land more than it limits the capital value of land grandfathered a high nitrogen reference point. There is no environmental reason for this inequity to occur. This not only limits current income it also reduces asset values. The most responsible nitrogen users experience the greatest pain, a 'sovereign risk' that will incentivise environmentally perverse investment and land management over the life of the plan.
32. This loss of equity will have significant intergenerational costs and has not, in my observation been adequately considered in the planning process.
33. PC1 is inequitable in: (a) the different requirements it places on land users with the same environmental effect (e.g. farmers in the same zone within a subcatchment but who have different NRPs); and (b) when it requires the same change where there are different effects on the environment (e.g. fencing rules based on slope but which ignore intensity of activity).
34. Equity is a major concern in public decision-making. The PC1 process could have provided measures of horizontal equity; vertical equity; benefit received; ability to pay etc. Agreement on what is equitable will always be debatable but multiple measures of equity based on well-conceived

criteria can helpfully illuminate the impact of alternative choices. This includes approaches taken in other sub-disciplines of economics such as that of Hyun Son²; practical approaches in environmental economics such as Ward and Scrimgeour³; or more sophisticated methods such as the use of Chebyshev's theorem which can be applied to any probability distribution in which the mean and variance are defined.⁴

35. PC1 as proposed is both environmentally inefficient and economically inequitable. Notwithstanding issues of equity, economic efficiency is maximised over time where regulation incentivises rather than discourages necessary environmental outcomes.

ALTERNATIVE POLICIES

36. There are alternative policies such as emission trading that could have been incorporated in PC1. The policy goals relate to an 80 year period. For river quality to improve throughout the 80 years policy change will occur and hence the focus on the initial ten year period. In the absence of a trading scheme within this period attention should be placed on developing a platform for incentivising optimal outcomes, including through nitrogen emission trading recognising that it will take years to design an efficient trading system. Now is the time to start this process but it is vital to design current regulatory choices to be consistent with this probability. Ultimately continued water quality improvement will depend on such a scheme.

PLAN CHANGE 1 PROCESS

37. Scientific and economic modelling provided by the Technical Leaders Group ("TLG) has generated useful background knowledge, noting that it is has not been peer reviewed by New Zealand based economic experts. There is significant disconnect between the work of the CSG and TLG and the actual plan. For instance, the CSG and TLG did not report any analysis on the efficiency and equity of grandfathering.

² Hyun Hwa Son "*Equity and Well-Being: Measurement and Policy Practice*" Asian Development Bank, Manilla, 2011

³ J.T. Ward and F.G. Scrimgeour "*Auckland Regional Stormwater Project: An Economic View*" (report prepared for Auckland Regional Water Board 1991).

⁴ Zhiyu Wang "*Economics of Water Pollution: Permit Trading, Reliability of Pollution Control, and Asymmetric Information*" Economics PhD Dissertation, University of Minnesota, 2017.

38. From an economic analysis perspective the modelling does not sufficiently and effectively inform the decision process. The modelling work made public does not show the economic impact of the plan change on different land users. It does not quantify or acknowledge in any meaningful way the transfer of wealth within the community based on the grandparenting of NRP and other pollution rights at a date coinciding with a historically high milk price schedule. The modelling does not make clear what future land use patterns within the catchment are considered commensurate with achievement of the Vision and Strategy or show how the proposed regulation will incentivise them. This work and associated sensitivity analysis should be undertaken as soon as possible.

NEXT STEPS

39. PC1 could be amended to improve efficiency, equity and the timely achievement of environmental outcomes.
40. The changes could include: Sub-catchment limits being specified for each contaminant; Grand parenting of emission rights being removed in favour of equitable best practice obligations; and simplification of the process of land-use change.
41. The Waikato Regional Council work programme could be modified and with greater emphasis on analysis, strategy and monitoring. Specifically this could include appropriately focused economic modelling and preparations for a nitrogen emission trading scheme.

CONCLUSION

42. PC1 would be more effective if it was revised to address inefficiencies and inequities. Action needs to be taken in relation to the first ten year period and in preparation for subsequent ten year periods.

Dr Francis Gordon Scrimgeour