Minutes for Land Technical Advisory Group, 24 February 2015

Bay of Plenty Regional Council – Te Wai Ariki
1125 Arawa St, Rotorua, 9:00 am

Chair: Dave Clark
Convener: Andy Bruere
Present:

- Gina Mohi (Independent Advisor)
- Phil Journeaux (Ag First)
- Neels Botha (Ag Research)
- Tim Payn (Scion)
- Greg Lambert (Independent Advisor)
- Marcus Bloor, Alastair MacCormick, Rob Donald, Natalie Miedema (BOPRC)
- Stuart Morrison (Farmers Collective)
- Others: Simon Park; Gloria Zamora, Lee Matheson (PerrinAg), Mike Scarsbrook (DairyNZ) and Ollie Parsons (DairyNZ) on video.

Action summary

1. Sandra Barns: to work on Tarawera economic analysis of actions.
2. Andy Bruere: to investigate the source of info for P discharge from land around the Lake Tarawera Catchment and present at next meeting.
3. Simon Park: to circulate Economic Catchment Modelling Project report when available.
4. Marcus Bloor: to check Olsen P info collected by BOPRC and clarify how data was collected and why it is different from industry norms.
5. Andy Bruere: to identify two farms for the LTPT forestry proposal and report back to Scion.
6. Andy Bruere: to update Helen Creagh/Rosemary Cross on Neels Botha presentation and offer Neels Botha to support to Advice and Support Program.
7. Andy Bruere, Marcus Bloor, Dave Clark and Simon Park: to work on further defining the suggested research topics. Circulate to Dave Clark first and then to full LTAG.
8. Warren Webber: to bring abstract of potential speakers for Opportunities Symposium to LTAG group and Andy Bruere for review.
9. Andy Bruere/Simon Park: to discuss with Tanira Kingi how Cultural Impact Assessment models could be used for Land Programme.
10. Andy Bruere to send David Hamilton's P-mitigation report when completed and circulate.
11. Simon Park: to forward farmer's request for science review to Andy Bruere to review details.

Item 1: Welcome, admin and recap work to date

a. The Chairman welcomed Land TAG group.
b. Apologies:
   For absence: Suzie Greenhalgh, Dave Houlbrooke, Simon Stokes and Warwick Murray
c. All presentations may be found here: http://www.rotorualakes.co.nz/land_tag_minutes.

Item 2a: Catchment Economic Work Tarawera Restoration Plan - Andy Bruere

a. Andy gave an update around the restoration plan for Lake Tarawera, including:
   i. Andy Bruere has had a discussion with Sandra Barns and Suzie Greenhalgh around the work needed for Tarawera to undertake an economic analysis of potential actions. Work can progress with the community and council through the working party set up to progress the restoration plan for the lake (see handout on "where we are at and steps involved").

ii. There are a few threats and Lake Tarawera has proven to be a complicated lake. The target TLI for the lake has been set at 2.6 and it is currently higher.
iii. The Tarawera Restoration Plan doesn't specify the nutrient sources and reductions needed and so does not qualify as an Action Plan. Furthermore, Council is waiting on GNS to model groundwater flows into the lake. Once the information is received the plan will be reviewed.
iv. A Tarawera Working Party has now been set up at had its first meeting 18 Feb 2015.
v. One of the key steps is likely to be putting in place some land use rules.
vi. At this time Te Arawa Lakes Trust (TALT) is doing cultural values work around Tarawera which will lead to cultural health indicators.
vii. Holiday bach owners may influence the type of sewage scheme to be used. BOPRC has been clear it is not requiring sewer reticulation at this point but it is an action that would meet about 25% of the P target reduction.
viii. BOPRC is looking at cost around different interventions, not necessarily the cost of getting to the TLI.
ix. A question was raised about the source of farm nutrient leaching data; Andy agreed to get specific details on the source in particular the source of P export numbers.

b. Discussion:

i. Question: If you spoke to people, would they say that the water quality is better in the past than now, given potential blue green blooms?
   - Blue greens are not unusual for that lake. The lake tends to oscillate in warm conditions and lake temperature has varied this year between 20-24 Celsius.

ii. What portion of Tarawera catchment P is sewer related?
   - 5% of total P which equates to about 25% of the catchment reduction target
   - The catchment could get up to 500 houses, currently there are around 400. However, BOPRC doesn't know what the proportion is between permanent residents and holiday homes.

iii. It was explained that whenever BOPRC undertakes a lake nutrient budget, two methods of budgeting for nutrient inputs are used: one is based on land use coefficients and then what is the expected catchment inputs based on lake water quality and model inputs. Generally this is used to check alignment with each method. For Lake Tarawera there is some disparity between these two estimates. It is expected that the ground water research due in the near future will assist in clarifying, however, all land use estimates are based on land use coefficient estimates and are subject to normal errors of estimation.

ACTION: Sandra Barn: to work on Tarawera economic analysis of actions.

Andy Bruere: to investigate the source of info for P discharge from land around the Lake Tarawera Catchment and present at next meeting.

Item 2b: Progress with Lake Rotorua modelling- Ollie Parsons, DairyNZ (by video)

Ollie Parsons gave an overview of the Economic Catchment Modelling Project. The project is still ongoing and these are only the initial results. The project is a collaboration between BOPRC, StAG and DairyNZ. Key points:

i. The project is looking at a number of allocation options and its impact on farmers in the catchment. The allocation options being looked at are the following:

Option	Description
Sector averages	Flat rate averages for dairy and drystock (46 and 21kg/ha/yr)
Sector geophysical averages	Averages adjusted for geophysical impacts on leaching
Clawback with sector ranges	% clawback from initial benchmarks with drystock in 16-32kg range and dairy in 39-52kg range
Clawback with single range	% clawback from initial benchmarks with all land uses in 16-52kg range
Natural Capital	Allocation based on productivity of the land (based on
Equal allocation	Allowances averaged over land <26d

ii. Constraints for the project are:
- Conversion costs
- Cows in/out of catchment
- Amount of land use change/trading efficiency
- Commercial vs. non-commercial

iii. Project is still a work in progress and the data requires further scrutiny. Next steps:
- To look at the impacts of profit on distribution of debt.
- To figure out how to model the P-load reduction (with land use change there will be a direct reduction of P).
- Once DairyNZ has completed the report it will be peer reviewed.
- BOPRC will be giving Ollie Parsons more allocation options.

iv. Project team waiting on StAG for their preferred allocation method.

v. The high-level impacts are consistent across the trading options.

vi. The large conversion of forestry is assumed to come mainly from drystock.

vii. The model highlights the Incentives fund role: Does the fund want to work with the largest farms or deal with the many smaller blocks? Smaller blocks may be cheaper in regards to profit/kg N but will require more work.

viii. There are many differences across the allocation options. In order for everyone to get to their economic efficient production a variable amount of trading is required. For sector averaging and natural capital, we need much more N trading to reach an economically efficient result.

ix. Lessons so far:
- Small changes can make a great impact.
- Difficult to predict farmers' behaviour in the future and in a dynamic situation.

b. Discussion

i. In the graphs, they show a drop in dairy grazing on sheep land, are those animals going out of the catchment?
- Not necessarily – the sheep land is preferentially converted to forestry

ii. Was change in land ownership or changes in land value taken into consideration or only land-use change?
- It has been hard to consider those as there have been very few sales.

iii. Why does having an incentives fund raise the cost of mitigation?
- It doesn't raise the cost, but it shifts some of the cost out of the farm sectors which affects overall farm sector profit.

iv. What sort of transition period does the model assume?

- The model is static to keep it manageable. With forestry, you will want to stagger the transition period.

ACTION: Simon Park: to circulate Economic Catchment Modelling Project report when available.

Item 3: A mitigation cost-effectiveness hierarchy developed for Rotorua farms - Lee Matheson

a. Lee Matheson of Perrin Ag presented on a mitigation cost-effectiveness hierarchy for the Rotorua catchment and farms. All modelling was based on real farms. Key points:
   i. The mitigation protocols used in the catchment modelling project have evolved over the past few years. Most of these analyses have used $6 per kg milk solids.
   ii. Marginal cost analysis show that the 1st kilo of N mitigation is the cheapest and the last kilo of N is the most expensive:
      - The most costly changes are conversion of dairy to drystock and complete land change use to forestry.
      - Wintering barns are expensive mitigation generally, and in this catchment.
   iii. Most of the farms have effluent systems that are efficient and already put in place.
   iv. Location and soil type are very important in which options are cost-effective.
   v. Data shows as % winter crop increases, farm average N leaching increases.
   vi. In the current modelling and previous work, the N mitigation methods have generally been applied from low hanging fruit first (cost neutral or positive), followed by a pragmatic list of what can be done at least cost [see slides].
   vii. On average, most dairy farms are operating below their benchmarks. However, the reasoning has little to do with the N leaching and more to do with reducing costs and other benefits e.g. ecosystem protection. We need to keep using real examples in these analyses and start having those conversations with farmers.
   viii. Farmers want to be farmers, not foresters.
   ix. If given 20 years to reach a target, most farmers (with some direction/support) can manage the change of those areas which are not efficient.
   x. Recent dairy farm system modelling indicated:
      - Farm profits on podzol soils are less impacted by N reductions.
      - The best farmer in catchment had a 1% increase in profit, but keep in mind that he has an exceptional farm manager.
      - Sheep/cattle change to forestry gives a large saving of N and may positively affect profit long-term. However, farmers are hesitant, risk averse and are not looking at long term future profits.

b. Discussion:
   i. What's a farmer's motivation to put in a wintering barn?
      - Protection of cows and protection of certain soil types which also reduces farmer stress.
      - A survey done on farmers showed that 100% of those surveyed chose a wintering barn for farm management reasons; not profit.

Item 4: Current land use in selected Rotorua lake catchments - Alastair MacCormick and Marcus Bloor

a. Key points:
   i. Data is from 1990 to 2012 to assess land use change around the Bay of Plenty.
   ii. An options paper is going to Council on the seven lakes <u>not</u> covered by Rule 11 – it aims to limit land use change to more intensive uses while the wider impacts of land use are investigated in more detail.

iii. NERMN data from 1999-2014 the trend in dairy soils show Olsen P is increasing and total soil N is high (an outline and review of the NERMN programme is here).

iv. Currently BOPRC is collecting more land use data for Rotorua lake catchments.
- There are 5 lakes which come under Rule 11: Rotoehu, Ōkāreka, Ōkaro, Rotoiti and Rotorua. All these have been benchmarked using Overseer for the 2001-2004 periods. We do not have good records of the changes since then.

v. The Lake Rotorua catchments comprises:
- 45% in productive grassland (22,600 ha)
- 16% in natural forest
- 16% in open water bodies and wetlands
- 16% in forestry
- 7% in urban / settlements

vi. There is a concern with improving confidence in Overseer N leaching outputs, noting the ~50% increase from version 5 to 6.1.3. At this point, only Lakes Rotorua and Rotoiti have been converted to version 6.1.3

ACTION: Marcus Bloor: to check Olsen P info collected by BOPRC and clarify how data was collected and why it is different from industry norms.

b. Discussion / questions

i. Total livestock numbers in the BOP region has decreased from 1.8m to 1.2m – this has resulted in generally better water quality compared with other regions.

ii. How does recent land use and N loss data link back into modelling the inputs and outputs of N balance in the lake?
- The next task is to re-work the "whole catchment" budget and try to account for attenuation between the bottom of the root zone and the receiving water (streams and Lake); then feed it back to WQTAG, particularly Kit Rutherford, to get a review of the assumptions and attenuation outcome.

iii. Where did the 435t N target come from?
- This was based on research work from the 1980s. This has been tested in the modelling work undertaken by UoW in 2014 which confirms the target of 435 tN will achieve a TLI of about 4.2 units.

iv. In terms of other land uses, what is being investigated locally?
- Local trials are currently limited to the Parekarangi SFF trial – see here. This trial has lower rainfall (~1550mm) than most Rotorua dairy farms. The BOPRC-DairyNZ funding extension will enable Overseer calibration work next year, based on 3 years of good leaching data.

Item 5: Lake Taupō Trust Forestry Proposal - Tim Payn

a. The project is an update on forestry economics and market outlook to support land-owner decision making on lower nutrient leaching land use systems. There will be 2 farms chosen in the Rotorua Catchment and 1 from the Lake Taupō Region.

i. The project is collaboration between Scion, BOPRC and Lake Taupō Trust Protection Trust (LTPT).

ii. Project still needs the 2 farms with good data from the Rotorua Catchment.

iii. Project will be starting shortly and running till June.

ACTION: Andy Bruere: to identify two farms for the LTPT forestry proposal and report back to Scion.

Item 6: Understanding and managing farmer stress - Neels Botha

This presentation was a continuation from the prior Land TAG meeting which was cut short due to time constraints.

a. Research has shown that after going through the expected emotional responses all eventually end up with accepting change.
b. There are multiple causes of farmer distress:
    i. Farmers (many) are time poor because of high workload
    ii. Struggle with people issues (farm staff, relationships….and Council?)
    iii. Farmers generally try to minimise effort
    iv. Debt and on-farm expenses are of concern
    v. Extreme climate events have big impacts
    vi. Compliance (environment) brings uncertainty, risk, distress
c. Often times a farmer's perspective is:
    i. Regional Councils can feel like a complex and intimidating maze that farmers are forced to navigate
    ii. Many/most (probably) have difficulty understanding the language and processes
    iii. Ideal situation to create feelings of anxiety, vulnerability and powerlessness
d. So when providing information to farmers, Council's should look at:
    i. A farmer-centred information (delivery) approach
    ii. Consider the on-farm impacts of the information (content) and acquiring it, might have in terms of:
        - Farmers' time
        - Effort required
    iii. There are associated costs in communicating messages to farmers it is best to work in partnerships with other organizations.
e. Goal should be to target the group of Early Majority which is roughly 35% of farmers. They tend to operate on a herd mentality but when a few begin to move they all move. If Councils continue to communicate in the same ways then they will continue get the same results.
f. Discussion:
    i. How do you make sure that the Early Majority moves?
        - Make sure that your target market is well informed
    ii. Sometimes we expect science to solve problems when it is not the whole answer, it's only a part of the puzzle.
    iii. If Council is looking to implement an extension programme, its best to target Early Adopters.

ACTION: Andy Bruere: to update Helen Creagh/Rosemary Cross on Neels Botha presentation and offer Neels Botha to support to Advice and Support Program

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Item 7: Lakes Programme Land Research Priorities – Andy Bruere and Simon Park

a. Updating the Lakes Programme Science Plan 2014 - Andy
    i. The Science Plan (as precirculated) is currently being updated which will include Land TAG research objectives and plan.

b. Feedback from Survey Monkey responses – Simon Park
    i. Prior to this meeting a survey was circulated to LTAG members and selected BOPRC staff to further prioritise the research topics for LTAG to focus on moving forward.
        - The same survey was sent to both groups which gave 2 sets of priorities.
        - All were asked to choose whether a research topic was High Priority, Important or Least Important.
    ii. Both groups had the following three topics in their top five: N Allocation, N Attenuation and Local Calibration

c. Discussion

i. After further discussion LTAG requested that the topics be better defined as many were not clear and we need to further clarify which research would be long-term, short-term, currently being researched etc.

ii. Members requested more clarification on "defining the problem" for each topic.

iii. The Land TAG generally agreed that the topics listed covered the main priority concerns for land research.

iv. Suggested by Council that there could be a blog forum to help LTAG contribute to defining the problems.

v. Once the Land TAG has identified their research priorities, they will be used as a baseline to engage with other end-users to get their feedback on priorities.

ACTION: Andy Bruere, Marcus Bloor, Dave Clark and Simon Park: to work on further defining the suggested land research topics.

vi. The Land TAG will then assist in prioritising the topics by email before next meeting.

Item 8: Land TAG Input to June 2015 Opportunities event – Warren Webber

a. Warren presented a draft outline for an Opportunities Symposium scheduled for 18/19 June:
   i. Symposium still needs an additional $10k sponsorship.
   ii. Start has been delayed; date has been changed a few times.
   iii. Will LTAG be willing to help check/filter prospective speakers?
   iv. If the 2 days is not sufficient workshops will be introduced.

b. Suggestions from LTAG:
   i. Rules Framework seems intimidating for the first day. Is there a need for a background summary of what the issues are? i.e How did we get here?
   ii. Best opportunity to learn is peer to peer. Have you shoulder tapped any farmers?
      - Contact Lee Matheson, Doug Avery and Andrew Hayes (farmer in Waikato)
      - For principles of N mitigation, consider Keith Cameron, Lincoln University.
      - Ants Roberts, Stuart Ledgard, Kirsten Bryant, Erica Van Reenen (B&LNZ) may be able to contribute.
   iii. Consider 3- 15 minute speakers and then a panel after to elaborate on key points?

ACTION: Warren Webber: to bring abstract of potential speakers for Opportunities Symposium to LTAG group and Andy Bruere for review.

Item 9: Cultural Impact Assessment models - Gina Mohi

An update was given by Ms. Mohi on current work being done on cultural impact assessments in the Rotorua sewage steering group. She was asked to present on how this might relate to farming and how a model of cultural impact might be selected. Key points:

a. Assessment would be on Māori farmers and with Iwi who have holdings in areas researched.
b. Assessment is voluntary, not a statutory requirement
c. The sewage assessment is headed by Antoine Coffin (contracted by RLC) and will identify the cultural values in relation to the activity by first determining the baseline.
d. Rotorua catchment has a number of iwi/hapū that have interests in Lake Rotorua.
e. Interaction is a combination with Māori farmers and/or manu whenua
f. The sewage Cultural Assessment sub-committee has evolved out of a need and has turned out to be the best way to handle conflicting opinion between iwi groups.

ACTION: Andy Bruere/Simon Park: to discuss with Tanira Kingi how this could be used for Land Programme

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Item 10: Other business, actions and wrap up

a. Farmers' perspective in regards to the upcoming science review: Farmers are hopeful the review will be robust for both in-lake and on land research, especially given we have now had at least 3 years of good P-limited quality water.

b. Discussion:

- UoW, NIWA, and University of Waikato have completed a report on strategies to mitigate P. "Assessment of Strategies to Mitigate the Impact or Loss of Contaminants from Agricultural Land to Fresh Waters" can be found here.
- UoW is also researching P-sources and partitioning between anthropogenic and natural sources due to the uncertainty on P movement/contributions to the lake.

ACTION: Andy Bruere to send David Hamilton's P-mitigation report when completed and circulate.
ACTION: Simon Park to forward farmer's requests for science review to Andy Bruere to review details.

Meeting End 4:00 pm

Next Meeting will be 6 May 2015.