Meeting Minutes

Rotoiti/Rotoma RRSSC

Technical Advisory Group Meeting #6

Date:	Tuesday 5 August 2014
Time:	9.30am – 4.30pm

Venue:	Rotorua Waste Water Treatment Plant	
Chairperson:	Jim Bradley	
Attendees:	Alison Lowe (TAG Member), Greg Manzano (TAG Member), Professor David Hamilton (TAG Member) Chris McBride (Waikato University), Riaan Rossouw (RDC) Andy Bell (RDC - Part Only)	Jim Bradley (TAG Interim Chair), Andy Bruere (TAG Member) Dr Kepa Morgan (TAG Member), Helen Ferguson (RDC administrator) Ian Mclean (Chair of RRSSC-Attended Summary),

JB - Welcomed everyone and KM opened meeting with a Karakia.

JB - I have Invited Andy Bell of RDC bearing in mind the importance of this meeting. I have also arranged for RRSSC Chairman Ian, to attend toward the end of the briefing on our output and decisions as we are on line to make a technical decision today. Let's go quickly around the table for individual and joint expectations for this TAG meeting.

1. OUR INDIVIDUAL AND JOINT TAG OBJECTIVES FOR THE OUTCOME OF THIS MEETING

DH – We are here for technical discussions to support multiple decisions and report back to Ian.

KM – I am looking forward to a good outcome today and would like to think that there is some movement around what the solutions are going to be. We can't accommodate the cultural issues though. Constraint plans and maps that are on RDC records should be taken into account.

RR – It is obvious from a technical point of view that there are different considerations that need to be taken into account.

AB – Work out rankings on the preferred options having consideration of what others think throughout the process.

GM – For me it is simple; the bottom line is we need to get a preferred option before lunch that has been agreed on having worked through any possible disagreements

Andy Bell – I would like to echo Greg's thoughts and hopefully TAG will reach a consensus today.

AL – Firstly, I suggest that we start by looking at our different viewpoints on things like sustainability and environmentalism and maybe there are technical considerations that we need to focus on as to what is best for the lakes and the environment.

Secondly, are we going to come up with one preferred option or a rank of preferred options (ie Lake by Lake?)

Thirdly, I felt a little uneasy after we finished last week and I don't know that we came up with the best non piped conventional solution and therefore at this late stage I wish to propose another option which has a configuration that maybe more acceptable as an alternative for your consideration and request 5 minutes to propose this to you. I guess

that it was unfortunate that we did not have enough time after knowing what the costings and the subsidies were to then being able to brainstorm on these options.

JB – Bearing in mind Alison's comments and others from around the table I would like to look at our Agenda and apologies for its lateness. We need to look at 4 or 5 new information catch-up items and discuss how we go forward: I do not think that it is productive to go over the minutes of the last meeting (which come in 2 parts) as this can be done offline by feeding back to me, but rather address the mechanical items as they feed into the decision first. How do you want to handle the minutes, has anyone got any comments?

2. AGENDA AND MEETING APPROACH

So the early Agenda items are:

1. Our individual and Joint TAG objectives for the outcome of this meeting.
2. Agenda and meeting approach.
3. Minutes from the previous meeting – Tabled in "Draft".
4. Update of community consultation meetings 3 August 2014 Rotoiti
5. Options Nutrient outputs revisited by Alison – see email coming in a few minutes.
6. MfE and BOPRC subsidies and Nutrient removal updates Andy Bruere – refer following emails.
7. High levels Options Risk assessment -as emailed distributed by Riaan before last TAG and introduced there- members were to consider for this meeting.
8. Planning Risk and Consenting Update - very brief update - I will email this soon and bring two hard copies.
9. New Item – Alison to submit new option
10. Any other new inputs from RDC and others?
11. Options assessment evaluation.

3. MINUTES FROM THE PREVIOUS MEETING (TABLED IN "DRAFT" FORM)

Matters Arising

KM – 2 areas of discussion

(a) Clarity on Biolytixs as an option – Greg proposed (though not definitive) that RDC would not want to own the Biolytixs. If RDC are not willing to buy the Biolytixs units then that would eliminate it as being eligible for any subsidies and a decision which RDC needs to make so that we know the outcome, can someone make a call on that?

Andy Bell – Kepa, it depends on what is involved to a certain extent as it is a bit of an unknown to us. We have the trial going on and hopefully we will get results from that either way, it is a tank in the ground and not that different to us owning a pile of LPG units in the ground. You tell us that it is low maintenance and I accept that, it would probably not be unreasonable for RDC to take ownership, though it has not gone to Council as yet and my advice to them would be to remain cautious, there is the location if they are going to be in groups of 2 or 3, who is going to give approval for them to be on their property and how do we link in responsibility if one property owner sells his property, how do we tie this in, would it be an Easement, we do not know at this point.

KM – The grinder pumps are actually owned by Council aren't they? Andy – Yes.KM – So wouldn't it be the same for the Biolytixs – Andy – Yes, we are legally entitled to have them on any ones property. The pipes crossing the boundary from the Biolytixs plants to the individual properties again, are they private drains or public drains? These are the details that we have to sort through along with the loadings. I am a bit hesitant to give you a categorical statement to say yes or no. To clarify crossing the boundaries the ownership of the pipe works is from the grinder pumps isn't it with 720 boundary crossings

Andy Bell – (from the boundary to the road do you mean) Yes the pump installation and the pipework from it, is Council's while that going to it is private with no easements. If it is a public drain then you do not need an easement.

KM - What's the difference between a pipe coming out of the property into the road reserve or the pipe coming out of one property and into another property if District Council owns pipes on both sides?

Andy Bell - It depends on whose pipe it is. If they are our pipes from the Biolytixs plant to the individual properties then they are public drains. If they are private drains then there is an issue over easements. From the Biolytixs plant out, I do not see a problem, it's is into the Biolytixs plant that will cause an issue. I do not think that we are going to solve that now.

JB – Kepa you mentioned that RDC's position is important in terms of MOH subsidy which the Health Department have said no to.

KM – I think that this could be revisited as they did it on the basis of nutrient reduction and public health. I can't see how you get public health issues out of a system that is OSET compliant for the Bay of Plenty. It is a nutrient issue not a public health issue.

AL – Except that we have separated grey water out so it could be related to the grey water going to the existing septic tank rather than the Biolytixs unit itself.

KM – The reticulation perception – Just because we have nine clusters it does not mean that it is not reticulated. (JB – John Harding was quite clear on clarifying the nine clusters.) I made a point about what I thought was in the Primary Court decision and what I thought was in the evidence that RDC put through that they did not want to own the system.

<u>Action Point 1</u>: - KM to go back to Ngati Pikiao and get that statement clarified so I have gone back through the lawyers that acted for Ngati Pikiao Environment Society (through Joe) to give us a statement on the key points of the decision and from the actual court record what was stated because that is a Verbatim Record.

AL – That's right as I had interpreted what had been said differently. So court records will clarify that.

<u>Action Point 2</u>: - JB regarding Kepa's comment 2 on page 3 for Drip Irrigation being significantly lower costs than spray and Rob saying "Not in his experience" and it was not addressed but left hanging. Is it being addressed by PDP as it just concerns me that Kepa has said that spray irrigation is probably not acceptable, yet the estimates have been based on that Kepa's comment "that the drip irrigation is less expensive where you can have the same area and drip irrigation removing a huge amount of costs associated with aerial spraying".

{Later note – PDP's latest estimates (of 15 August) include subsurface drip irrigation in all LTS Land Disposal Estimates – Note added by JB}

KM – The aerial spraying that you have in the forest is basically sacrificial because once you have cropped or logged you have to replace it all and if you are talking about putting it into commercially logged forest the rotation cycles are much shorter now, so will not be able to put it in and have it sitting undisturbed for a period of four years which PDP have used for their analysis, therefore you are going to replace the whole system.

AL – Do you want to clarify the statement because you could say that it depends on the crop and if it needs to be removed during harvest because it could be some crops (ie. grass) using a pivot sprayer with a configuration if you are going to do grass.

JB – Cut and carry, still low pressure sprays.

KM – That's one issue if it is cropped, if it is cut and carry then you have the mechanical machinery and that isn't cheap to operate and maintain.

JB – They are all design, operational and cropping techniques, the concerns I have are that if the Minutes are left as they are without comment back from PDP, there is a clear message that drip irrigation is much cheaper than spray and that I would suggest is not the industry position.

KM – Once again I think that it is a question of the actual specifics we are talking about – I have just walked over the site of the trial area that we are putting the site irrigation into is as good as it can possibly get according to the installers.

JB –I have just raised the issue that last time we did not put the issue of finality in and Kepa, I don't think you expanded PDP's brief to look at a drip irrigation subservice did you (KM – No).

AL – Kepa, was there any cultural reasoning around the preference of drip over aerial?

KM – When we talked about 'aerial', I said that there was probably going to be a perception issue given that the spraying in Whaka has basically got to the point where CNI has kicked it out, so you have possibly got a stigmatisation maybe.

AL – Could be a cost saving if you are going to use the same equipment

4. UPDATE OF COMMUNITY CONSULTATION MEETINGS ROTOITI

Rotoiti Consultation Meeting – Saturday 9th August 2014

AB – It was a busy meeting and my feeling is that people are very concerned about the cost and implications to the community and there was an understanding that we need to do something, but a bigger concern was about where the money was going to come from, and specific questions about new techniques yet to be trialled.

Andy Bell – Good to see a group of actively involved people though they had a lot of concerns about the costs and differing viewpoints about the tried and tested traditional versus the not so traditional. I believe that this is where the debate is going to continue to lie.

KM – There were a couple of people who asked questions about why the cultural issues had not been addressed and why it had not been taken into account. Was there an attendance list with addresses? (JB replied yes), as there were a fair number of people that do not live at that end of the lake, and spoke to the meeting urging certain actions who that do not live out there. So I thought that that was a bit of a jack up by the Rotoiti Ratepayers Association and was concerned as we were co-chairing the meeting, with the other end of the lake making the decisions. Willy Emery/Chairman said that they felt bullied into the solution, and I feel that there is potential for this to become quite divisive in the way it has been set up. Several folk were not having a bar of the west end of Rotoiti telling the East End what to do, bearing in mind historic rivalry there. Ian stated at the meeting that the cultural issues were not going to be determined by anyone but the Steering Committee, Ngati Pikioa will make statements on that. Jo Tahana challenged that and asked who is doing the cultural and social impact assessment which is a good point if we are not going to advise them, then who is? If it is a case of expecting the Iwi representatives to walk up to a meeting with no advice or analysis being done in the background and basically doing an off the cuff vote, then I would say that it is going the same way as this end being bullied in to a solution, it is not going to be received that positively and it is going to be a problem, because I am going overseas on Saturday for 2 weeks and if someone decides that the Iwi Reps need briefing, naturally it will not be me, that's a situation that has been created it is not one that was looked for.

AL – When are you back in the country Kepa (KM - 26th August).

JB – My understanding of the way it has gone out to consultation is that the committee works with various iwi and groups and Ian's been doing that and has asked strongly for our recommendations coming out of today to be given to him asap without the full background report even, so he can get it out to the various groups.

KM – If they haven't got anything to go on in terms of cultural issues then it seems incomplete.

Andy Bell –I have got to take my lead from the representatives of the steering committee (and there is plenty of them), which have got my support, I understood Ian to clarify that the cultural impact assessment would be done by Ngati Pikiao and Ngati Makino.

KM – There has been no approach for that to have been done

JB – That is not a matter for TAG but rather a matter that we can refer back to the Steering Committee. Our input is wanted asap.

KM - This is one of the big things that RDC fell over with the last time. The Environment Court criticised RDC's processes saying that they weren't thorough and all inclusive. One of the biggest things was that the consultation with Iwi was ineffective with actually no effort put in to understand the issues.

Andy Bell - Kepa this time round the reason that we set up the steering committee like it is and this TAG group in support, was to try and get over that by involving everybody that we thought should be involved and for them to give advice.

KM – So am I here to give cultural advice or not – you can't have it both ways. Ian has told me that I can't approach Ngati Pikiao, and that we can't cope with cultural issues.

JB – You are here for this TAG as an Engineer with local knowledge, and as I understand it, to ensure that we have an appreciation of the cultural issues as we work through and we have been listening on that.

KM – It was clearly stated to me at the last meeting by both Ian and you Jim that cultural issues are not going to be considered by the TAG. I have tried to have them included here and it has been a battle.

JB – I said to be mindful - Today we are making a Technical decision with a wide definition of Technical that is not bringing in to a last degree the cultural.

KM – So we aren't bringing in the cultural. (JB - correct). That is what I wanted clarity on, so who is going to give that advice on cultural issues to the members?

JB – That is coming through the committee membership working through the hui and various groups and that's where Ian was charged with that through the committee. KM – I think that that is going to fail.

JB - Kepa the position was that we as a TAG decided to run a trial MauriOmeter and MCA at the first meeting as an example run and we are going to do it today from a technical point view. You were to come back on the MauriOmeter and Alison has come back on hers and that's a key part that we want to get to shortly. But that has never been a decision, it has never been decided to take the MCA wider to Ian's committee or past that.

AB – I had the understanding when Ian came to our meeting that last time or the time before, that he had quite a different view as to what we should be doing in regard to the cultural to what this group had. Although I do not have the confidence to go through a cultural assessment personally myself, I thought that we at least were having regard for cultural considerations as we made recommendations, so we have not been ignoring them. In view of what Kepa's saying - isn't that like a really big message to the RDC then as to how they make sure that it does not end up in that position. So perhaps the step from here rather than this group getting into a debate about it because I am certainly not qualified to debate those issues. How is the district going to deal with that with the steering committee and perhaps getting the right cultural advice by commissioning someone to do something?

JB – I want to come back to this item. I want to bring this to a close, the TAG as I understood it, has continued to be mindful of cultural matters but today we need to get through the technical, we can put in provisos and include in recommendations the importance of the cultural but we can't make them.

CM – The thing that I found a little concerning at the last meeting is that Ian said that TAG would not have another bite at it should things change around like cultural matters, so it is not so much a problem necessarily if we include the cultural issues today but if we are not given another chance to make recommendations of whatever our technical solution is, if gets knocked back at the steering committee level then what's the steering committee left with?

Andy Bell - I think that I can give guidance on that because at the end of the day my desire is that we have a consensus of a solution here that we can all stand behind and take to a hearing with the Regional Council to get a consent or whatever we need to get to that so if there is any revisiting from the TAG group or whatever it is, we will make that happen, as we can't have the Steering Committee put us in that positon that they are not going to be in able to proceed and get a good result out of it. Whatever it takes to get us to the start line is going to have to get done. If that means that we have to reconvene the TAG group for whatever reasons, then that will get done. I am tasked with this and I do not want the wheels to come. I have to take a bit of guidance from the steering committee because they have been involved to

get us to the end result and like Andy I am not qualified in this area and need to get advice from the people that do know. Ian has gone on record saying that things will be done locally and that's fine by me.

KM – Those on the steering committee are inclined to sit back and wait to speak last and will expect a full analysis. When they don't see it they will probably say no that's not what we want –we are out of here.

AL – But does the cultural impact assessment need to be made before the end of September? Could this not be done later, on your return?

KM – If you have made a commitment to a technology solution without a cultural impact assessment it is a farce and the court is going to say exactly the same thing, they are going to say that's bullshit you guys have already made up your minds, then you decide to go and do the cultural analysis you haven't taken it into account, which is exactly what you did last time.

5. NUTRIENT CALCULATIONS IN THE BAR CHARTS AND THE %'S

Attachment 1

JB - maybe we all know the bar charts backwards by now

AL – I think that everything is OK, there was no difference, I didn't re-run them but I had another look at them. It is 63 and not 68 in the graphs and everywhere. There is no issue with the nutrient removals as far as I can see. Kepa did you check my calculations. (KM - No).

KM – I think what that does raise for me though is that the Biolytixs is a work in progress with urine separation in or out and there is the opportunity to take the grey water away from the lake using the same system you just by pass the filtration, however there is an issue with that as it has the potential to clog the disposal lines if there is too much fat going through those lines so that wouldn't be the best solution but you could place a grease trap in between.

AL – My new proposal would get around that issue.

JB – So the information we have is fine as it is out for consultation process (AL– correct).

Implications of Lake Findings and Input that were alluded to in general terms at yesterday's meeting, Regional Council on subsidies relative to Lake matters and action plans:

6. MFE AND BOPRC SUBSIDIES AND NUTRIENT REMOVAL UPDATES

(i) Bay of Plenty Regional Sewage Subsidy

AB – It's not all that easy as there is a bit of a story in some of these emails, because of a mistake in the initial email from MfE. I think that I will start with the Bay of Plenty Regional Sewage Subsidy, Eddie Grogan (our Deputy CEO) has set out what are the criteria there and I think most of those are straight forward, it is a community scheme not an individual so things like OSET are simply not eligible. It is interesting what Kepa has been raising and continues to raise around whether the Biolytixs system is a community system or not so I am not going to enter into that debate, but will say that we need to be aware of that and perhaps if we are uncertain and that becomes the preferred option then we should very promptly take that up and say that this is the specific scheme and we need some advice on that so we can let people know.

AL- So basically we don't have an answer at this point in time whether Biolytixs would be subsidised or not?

AB – No I haven't asked that, I have been a little careful about that, particularity with MfE I said that I don't want you to go through and have a look at this, (a bit like what MOH did) and say that this one qualifies and that one doesn't, because I think that there a some uncertainties there, if we did that and we start to get a perception that something doesn't qualify then we don't have the opportunity to fix that. So to me the objective here is to try and get rid of the

nutrients from the lakes, from the lakes perspective and that's what I specifically said to MfE and said can you count on those terms, which they did, but they came up with funny numbers.

Assessed on its' own merits; it has to resolve lake water contamination issues, and it would need to have as a minimum requirement the same nutrient reduction standard as the OSET standard. That's presumably Option 7, so what we need to ask is, does the option do better than that? If it doesn't Regional Council would say, why should we want pay a subsidy on it, and again that's why I avoided getting into the specifics of each system. I am not sure how these pan out but at the moment they wouldn't make the three alternatives.

(ii) **MOH Sewage Subsidy for Rotoma** (again, after a few emails we got the final word)

AB -Basically it is all there. The programme has an outcome focus so they are looking for the TLI targets being reached on the lakes and are obviously achieving nutrient reduction targets to get that. We need to demonstrate whatever system/s selected, that they are going to reduce the nutrients from entering the lakes and that they contribute to the TLI target.

Kepa you asked a question earlier about those nutrient targets and that was why I went back to MfE because there targets looked different to those on the Action Plan. All I can understand from that at the moment (as I don't have enough time to go back over the processes), we have a draft Action Plan for Rotoiti & Rotorua that have some actions in it, that have come up with the same nitrogen number but larger phosphorous numbers, (these are the ones that Chris will have the numbers for). In the email the Phosphorous was 1.1 a ton, but in Chris's calculation it was ½ ton, with septic tanks 5.3 tons of nitrogen and 0.53 tons of phosphorous, with a 1 to 10 ratio. The reason that that has happened is that we do an annual work flow path programme which someone in our organisation wrote while I was away in China last year, so I asked him where did you get your numbers from because you got them wrong,.(so there are some adjustments required there). The numbers that MfE sent through are certainly not the numbers to be relied on, but I did not want that to come through because people would get the perception that we would get 1.1 tons of phosphorous but the reality is, that we aren't and this is why I did not want this to be included.

JB – So the short and long of this is from almost a lay prospective if we draw a line across it OSET, and any-thing above is unlikely to get both of those subsidies, is that the way we are reading it.

AB – That is pretty much how I interrupt it. If they look at those numbers and you say that it is the options that get the lower numbers, then we want to have a pretty good reason as to why we went down there or some combinations of options that brought those low numbers.

KM - If the costings come in we will be $5M cheaper even with the subsidy taking part there is still a difference in there for the community, if they subsidies the cost of buying a farm.

AB – What you are saying is a fair comment, I don't think that you are going to get anything from the subsidy in buying the farm. All decisions have a different environmental outcome and so the best option for Lake Rotoma might be just to take it out of the catchment and get all the nutrients out, but there the will be some things which indicate that that is not such a good idea, so I think that we need to have a position where we can go back to both funding authorities and say yes we appreciate that is the best option for the nutrients but there are other complexities around that which might be costs and cultural complexities. That's around justifying why you may not select the best nutrient reduction option.

JB – Ok, so we have that one on the table.

7. HIGH LEVELS OPTIONS RISK ASSESSMENT -AS EMAILED DISTRIBUTED BY RIAAN BEFORE LAST TAG AND INTRODUCED THERE- MEMBERS WERE TO CONSIDER FOR THIS MEETING

Attachment #2

The Risk Matrix was tabled by Riaan KM – I did a preliminary look at it Riaan around the sudo numeric scales that you have used I wondered if they needed discussion so that they were understood. Can we cover this at some point Jim?

JB – Yes because this feeds into our decision making and it is a global high level view that we need to deal with now bearing in mind that it did pick up on the AS/NZS compliance standard used by the industry.

KM - I have no issue with the compliance standard in the first column, then there is the sudo numeric scale which is where you interrupt that in the context of the project, so what happens is that you actually assist in accessing the livelihood of something happening, and you need to have the likelihoods that are relevant to what you are looking at, if it is something that only takes a year then you need to look at increments that take a year, if it is over 40 years then you need to look at that in the consent context, which is almost certain we had for every another year of project but that is actually a continuous risk in this case because the system is operating continuously. Does that make sense? (AB – No, I missed quite what you said) KM - OK. This is the likelihood of the event happening and you have five categories from rare, unlikely, possible, moderate and almost certain, now almost certain for an operating system is a continuous risk. We have got typical every other year project from a business prospective if you are the consultant and are managing your insurance risk so the way it is described is actually different and I am not sure where it originated from, but you are looking at it as a legal liability that you insure for.

JB – So you are putting this into the context of the project, is it affecting greatly what we have done here for the first cut?

KM – Well yes because you have to understand that, to get that correct, otherwise it is a bit of a guess.

Andy Bell – Kepa -you don't talk in term of "almost certain" in a risk matrix as being continuous though you have to define those really I agree with you, there has to be some kind of definition or understanding of those but generally speaking we are talking about one to five years plus with risk of matrixes – it can happen in 15 years, in 5 years, every year or multiple times a year, to say continuous is pushing one side of the view point too much.

KM – The criteria states 1 in 10,000 years is rare, in 1 in 10,000 years or less than 1 in 10,000 projects, which I think is ridiculous. Who even does 10,000 projects? They need to be looked at in terms of this project as they are quite generic.

JB – But if you are on that page then you have got the TNZ scale which gives a percentage which is dubious, as a first cut window in traffic lights, how much is that affecting it at this point?

KM – We need to clarify what that is because that is what you are measuring, if you don't know the scale on your ruler, how can you get the answer. When you get into the actual analysis you are not going round in cycles.

AL – It is quite qualitative - isn't it?

KM – Did I mention that I teach this and it is something that I am really hot on when I teach the students, if they write something like that I say no, it doesn't apply and ok it's not the same context but I expect them to do it in relation to the context of what they are accessing. It needs to make sense, when you choose the likelihood descriptions you don't just get all 5's because it just makes the likelihood a waste of time in terms of including it because you are not using the scale that you have available.

JB – The way these usually go forward as I understand is you do this and get down to a very short preferred list, you then work it up in detail and do the mitigations to try and reduce so you do a before and after further mitigation that you had in the concept. The point is for today we have a fairly high level window on the table.

KM – Has anybody else had a look at this apart from Riaan drafting it? (AB, DH CM – No), I began looking at it Jim and then realised that I needed a clearer understanding so I started reworking the scale because I was just going nowhere with it. (RR - I think from me I took the 2nd column AS/NZS 4360 as a very wide definition. If you want to "refine a ruler", then you will have to work on that one). (JB – Is it going to affect today's decisions making?)

KM – I am not willing to rely on it at this stage because I have not had a change to clearly review it. Here is the inconsistency you have got the combined standard which says that it is expected to occur in most circumstances, almost certain is the likely description, but the sudo numeric is typical every other year or project. To me that does not fit. (JB – In this context or generally) KM - No in this project because this sudo numeric has not come from the AS/NS Standard has it? (JB – Yes I am sure it has). KM – I think that there is an issue here and have renamed them, in terms of our project they don't seem to make any sense.

8. - PLANNING RISK AND CONSENTING UPDATE –

JB - We put on the table last meeting with an MWH Senior planner preparing this. It was a MWH separate engagement (nothing to do with my engagement), but I did feed into it. Kylie has rerun and reissued it and I have two copies here, but nothing has changed except the planning instruments she went through she left 2 last time called other matters, firstly Bay of Plenty and Rotorua Action Plans and simply from a statutory planning point of view commented where they sit and the Iwi Management Plans who rightly said Kepa last time that it was a very old one she has referred to was dated 1997 and the Regional Council has advised that the there are no relevant management plans that are applicable to the two lakes, Rotoiti and Rotoma.

KM – Normally you would use a document that is available until it is superseded, just because it is old doesn't mean that it is out of date. If it went to court that would be a home goal to say that we did not take it into account because it was an old document.

AB – Do you want that checked with Regional Council, if you give me the documentation number?

ACTION (JB: - Yes, AB it would be useful if you could please check that out)

AB **-** Just to confirm that it is advice on both "Rotoiti and Rotoma". (JB – Yes)

DH – Just to seek clarification, that is not the joint land and water plan is it?

AB – I don't know I am trying to find were it is referred to on the instruments.

JB – The latest print out of this only has planning overview matters, relevant planning instruments, so it has got a whole list of instruments with all the tables and picks up the key policies and Iwi Management Plans and under the act we have other matters.

ACTION (Andy if you would please follow that up with a statement on Sections 3.31 & 3.32).

9. NEW ITEM – ALISON TO SUBMIT NEW OPTION

Alison first wanted to discuss the different view- points on sustainability and environmentalist and she referred to the following table

To understand our bias in the assessment, and why we might not agree, we could consider the extent (%) that we identify with each of the following Philosophical views:

Technocentric viewpoint	**Interventionism**	I have faith in the application of **science, market** forces, and managerial ingenuity.
Technocentric viewpoint	**Accommodationist**	I have faith in the adaptability of **institutions and approaches** to assess, evaluate and accommodate environmental demands
Ecocentric viewpoint	**Communalism**	I have faith in the **co-operative capabilities of societies** to establish self-reliant communities based on renewable resource use and appropriate technologies
Ecocentric viewpoint	**Gaianism**	I have an **earth-centred philosophy** that is holistic and spiritual (our identity, self, or spirit extends beyond individuals to a wider reality that includes, but is not limited to , the earth as a super-organism)

To agree on an option by consensus, we need to consider the options from all perspectives or worldviews. We either assess the option with consideration for all perspectives, or identify the perspective that the assessment was made from (ie. state our bias).

Sustainability and Environmentalism

AL - We have just assumed that we are striving to improve the water quality of the lakes and that we did not collectively agree on what the bigger vision was and the definition of sustainability on what we were actually trying to set out to do might have helped for us to consider whether we were going to include or consider, things like cultural considerations. I think if we all look at the bigger picture of sustainability we would all agree on cultural considerations by diversity, and all these other things that you find by definition of sustainability we would probably agree that those things are all encompassed. But when we come to looking at evaluating it we all have different ways of looking at things. People can be broken up categorically into a few different world views and even if we are looking at what technically is the best option we are looking at it from a different prospective and this is probably primarily how engineers look at things by considering they have faith. I think if we each think about the extent to which we relate to these sentences here on the white board whether we have faith in science market forces and managerial ingenuity. Because we work for Council, Council is aware that in the engineering group we would probably have a tendency to relate to facts with a world view, that we could figure out what is best, what is the best science, apply it knowing it is going to be best for everybody. However, that is not the way that everybody looks at things, there are people that typically leave the solution to others and are happy to accommodate the decision that others come up with. Then there are a number of people that take on an eco-system based view and with communalism there are people that really have faith in the cooperative capabilities in society and I can't help but think the view point in Rotoma is in that way of looking at things, and then there are the radical greenies in NZ, those that agree in the whole earth system and connection and that the solution is going to come out of that. Even if we go through now and do the assessment there may not be a right or wrong and we may not agree on how to allocate it, it is not because there is one option to allocate, or one score to give but because we are looking at it from different viewpoints which is a comment that I just wanted to make there. As a TAG we are probably going to be primarily rating it with that sort of intervention of approach accepting that that's how things should be done but if the community does not agree with that approach then we are going to be at logger heads and we need to understand the view points of the community as well. I thought that this might be helpful to keep in mind.

KM – I would like to make a comment, I think that I am here and there is a fair number of Ngati Pikiao are here, the ones that are going to be most outspoken (pointing to the white board again), when the Iwi moves as an Iwi that's the way they will be thinking.

AL – For me, I am primarily in this bottom view point with a little bit about science, interventionism and communalism with guidance but if I was to run this past most people in Council they would probably be sitting up in the top one saying that someone else can come up with the best solution.

GM – But in terms of the process that we have now would it be fair to say that the top two are for this group to look at and the bottom two for the committee to be concentrating on?

AL – Not really as we are biased in the way we will give our scores because personally we take one approach or another, so it is not like it is up to us to decide what is best.

AB – It is nice to understand that, but say we go through this process and we all have different scores then I think what you are saying is that we should have an approach to dealing with the scores that is different from just averaging them.

AL – Absolutely, you know how we run the NCA giving different weightings to different things we could always run something like that and say that these are the things that come up. If you do enough of them you are going to represent everyone's view point. We could basically say where our philosophy sits in one of those areas there and say this is how we scored and accessed the options given that we generally look at things from this prospective and then the steering group could see how they look at it and you could see how the community look at it. (Yes, if you wanted too).

JB – That is how we have looked at other projects that I have been involved in and that is not too far from where we are today from our prospective using our terms of reference.

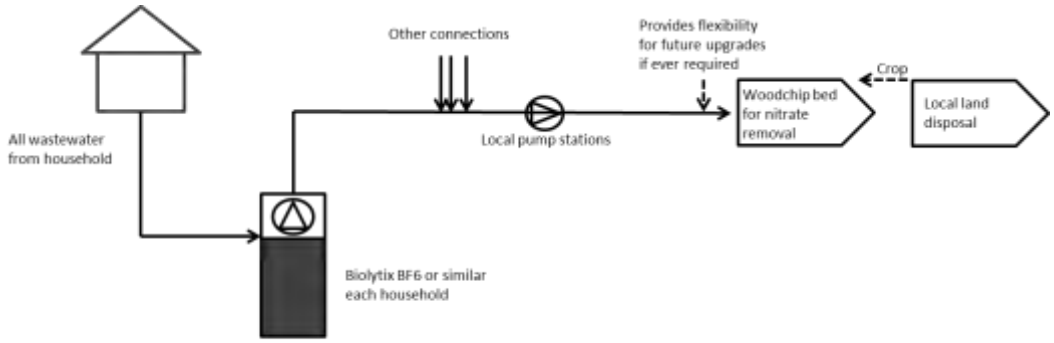
AB – So the way I was thinking about this earlier in the day, but I am not sure that I wanted to say anything but I think that it is a little bit like being on a jury, so we have to make a decision perhaps on every aspect, we can't just go we will just average this and she will be right sort of thing, we might have a number of people that might want to go one way and a number may want to go the other way, which helps us to understand that and come to an agreement.

AL – I think the big difference that we are going to see is basically that we reticulate everything and treat it with an MBR or deal with it on a community level that's really going to be the people who believe in science and intervening will go for option 1, 2 or 3 and the people that have the view point that social society community approach are possibly more inclined to go the other way. So I guess that we keep in mind that there is a different view point when we do our ratings.

AB – One of the problems is that there is an artificial restraint here and that is the MOH subsidy because the reality is that if we don't reticulate sewage in either of those lakes by next year, or the year after, or the year after that, the world is probably not going to come to an end. It's about what is best long term isn't it. So we have this artificial restraint saying get on and make a decision. (AL – And this is the dilemma that we have been in).

AL – I wish to propose another option at this late stage

(Alison provided and put on the screen a schematic diagram of the Option)



Option 8. OSET, C-bed, LTS (modification of option 5): Wastewater treated onsite in Biolytix tank (or similar) for each house with pump to discharge to community reticulation. Carbon-bed to remove nitrate prior to a LTS.

{Note added by JB – AL's Option 8 was re-titled Option 5A as it generally followed Option 5}

This is a different configuration to the alternatives because I don't think that we have the best approach yet as an alternative to the main reticulation options - if we don't do option 1, 2, or 3, the other options are too expensive without all subsidies, and I don't like the way that these options leave the grey water behind. In leaving the grey water behind we leave a significant load of nutrients and pathogens sitting in these failing discharge fields that want get the MOH subsidy and aren't really a good solution. Craig and Kepa have been trying to come up with the best solution where the community has more control, and I don't think that we have quite "nutted" them out properly.

KM – This is actually where the thinking started, but the reason that we came from three houses into one was the intermittent loading of the holiday batches which need that process to be running when the peak hits all of a sudden. So the idea was to buffer that by having more than one home on it. But within the maintenance schedule we figured out that the maintenance would be done in the middle of winter and where they see very little usage they would just throw a pumpkin down and the worms eat on that in the meantime for those homes only. The other option to that is you wire it all up and run it for three days and you put worms in with food and away you go, you don't have to touch it again.

AL – This need not be the Biolytixs system but any other system that has passed the Austraila-NZ Standard. The systems that don't meet the NZ, Waikato or BOP standards for nutrient removal, basically treat to the same level, but the nutrient removal systems seem to have more things that can go wrong whereas Biolytix seems to be relatively issue- free and low energy consumption, so this option could use any OSET systems really, not just Biolytixs.

KM – In my experience though, being so reliable you put these in the ground with the worms and anything that you through at them and they continue to work away even if the power goes out, they just keep working.

AL – Yes from what we see in the OSET trial in the first year, they do just keep working. They perform in that regard, but they don't perform in terms of nitrogen removal. This option goes back to not separating anything, (so you don't need urine separating toilets and you don't separate the grey water and put it through the existing discharge field), Pass it through a Biolytixs unit, then reticulate it and put it through a carbon bed and discharge it. We would have similar nitrogen removal as the OSET for example, we would have better phosphorous removal because everything would be going to a well-sited land treatment site, we wouldn't have any grey water sitting around the existing discharge fields. We have the opportunity then to have this on local land. You could run a land disposal system with a woodchip bed first and grow a crop for woodchips or firewood - It is located away from the lakes so it is better than the default OSET option which I'm worried we might end up with if we don't reach an agreement on an option . With around 20% of the current disposal fields failing, something like this proposed option would be better even though it is not removing all the nutrients and is leaving some in the catchment. It would get over the subsidy issues because there aren't health issues (as everything is collected and reticulated) and because it is better than OSET, it should still get the MfE and the MOH subsidies

KM – This would get around the cultural issues as well.

DH – Why do you say that it has 'modest' nitrogen removal with woodchips?

AL – Because you have 40% nitrogen removal here with the Biolytixs unit, and then I think you could deal with only some of the remaining nitrogen in the carbon bed and LTS. But given that nitrogen is less of an issue than phosphorous in the catchment, it would be way better than OSET for phosphorous because you haven't got 80% of the nutrients sitting there in leaky septic tank discharge fields.

AB – Out of those Biolytixs systems Alison, so nitrogen will be as nitrate?

AL- In this one yes, there is 40 milligrams / litre of nitrogen basically at the end of the Biolytixs system, half of it is nitrate.

AB – So it doesn't have to be a Biolytixs, you have other options as well?

AL – Yes, you could choose which one depending on a number of things, like the Biolytixs unit has 39 mg/L of nitrogen (40% was removed), of the rest of it, around half is nitrate, 15 ammonia, and 5 organic-nitrogen

AB – Can you boost them if you want to make the nitrate higher?

AL – If you want to, but if you are passing through a carbon bed this would be great for removing the nitrate, and the ammonia could be taken up in a crop.

KM – Andrew Daker's has got a disposal trench designed to remove the nitrates that I was talking about.

DH – There is 15mg/L of ammonia waiting to be nitrified.

AB – The reason that we are talking about nitrogen too, even those numbers that Chris came through with, I think he was calculating on 2013 numbers and remember that nitrogen coming into Rotoma was modelled at a much higher level in 2009 and we have done nothing to change that. So Chris and I discussed that and said that there is always a risk that it could come back up and we don't know why it is there, and why it is not coming down so getting nitrogen for Rotoma is still really worthwhile.

AL - But if you were to put this through a carbon bed you could get rid of the nitrate and the ammonia could be available for plant uptake, and you could almost match the need of the plants with the load applied there.

JB – So until we get to the carbon bed you are not over the OSET line are you it's fair to say?

AL – That's right, but it does have the advantage over OSET in that OSET still has 15 mg/litre (if it doesn't fail), going into the discharge field and leaking into the lake. This disposal site isn't necessarily leaking into the lake, so it is potentially better than the OSET default even for nitrogen.

Andy Bell – I don't want to interfere here, but from my perspective I really like the idea Alison – I have never been entirely comfortable about the high rate of nutrients discharged to our land disposal systems, coming from some of the alternative options, and as I mentioned last I just see it as a headache waiting to happen. I have never been entirely comfortable with the multiple versions of the separation at the source, I understand it but am not particularly against it but I see that as almost playing with things. The third thing that I want to say is that at the end of the day I can't see us getting a consensus on either, some will want one and some will want another, but what the proportion is going to be I don't know. So I am really interested in seeing us pursue a better version of an alternative that gets rid of some of those headaches, if you like, and come up with something that is more certain, less dependent on the soil renovation of the nutrients because I really do have a headache over that.

AL – It is not too dependent on the soil, it is not very big and is a much more manageable size compared to other land treatment systems and is therefore easier to balance the nutrients in the discharge with the crop uptake. (GM – Are you looking at individual Biolytixs for each property?)

JB – Each property, so you are in the 700's and then reticulated after that to a discharge field.

GM – And then you would have one centralised plant.

AL - Yes a centralised carbon bed followed by land disposal. I was just thinking Rotoma for this, but of course you could do a cluster for Rotoiti, or cluster 2, 3 & 4 for Rotoiti, so you still have up to 9 clusters if you wanted to.

KM – Because this has been through the Biolytixs there is no faecal matter so you might get it over the line. What is the scale of validity of it Alison, could you do this carbon bed as a cluster solution?

AL – Very easily, you would just size the carbon bed, but with regard to costs I do not know, or about the cost of reticulating.

GM – We will have to go back and do it again.

KM – I think that it is a good suggestion and it has to be performing better than what we were. I take on board what you are saying Andy, and am fully aware of difficulty of the urine separation, I am aware that having these multiple discharges and that's why last week when PDP did their presentation I said let's look at a way to take the grey-water away from the disposal field.

Andy Bell – To a certain extent we all know reticulating wastewater is the simplest way for most people. They don't want to know, they just want it to disappear.

KM – I think Alison has just gone back to the start and said let's do this; it makes a lot of sense, what's the costing? The Biolytixs units themselves are not as cheap as the grinder system but it gets past all the problems with transferring faecal matter which has been the real sticking point.

AL – It is also reducing a significant load of nutrients in the Biolytixs

CM – I was just going to add that Biolytixs might be more expensive than the grinder pumps but you are removing a lot of solids from the central plant as well so there might be presumably be a cost offset to that.

AL – Yes, It is already filtered.

JB – As I understand it this doesn't have a central plant, unless you are call the carbon bed the central plant. So be it one or two centralised schemes just think it through. Replacing a grinder pump with Biolytixs on every property to take away an in ground treatment plant and replacing it with a carbon filter we still have the same volume to dispose of be it 9 clusters on one Rotoma scheme.

AL – It would be the same size discharge field as option 4.

Andy Bell – One of the problems that I have, and it applies to all options, is the land disposal portion of that. I want to have a wee dig at the Regional Council (sorry Andy), we are doing this as part of the lakes water quality programme right to solve environmental issues with the lakes, and as RDC gets consented to have a land disposal system, and then we are monitored on our performance of it and this is why I have these issues of getting things thoroughly tested like it was at Whaka it didn't work out the way it was supposed to, and that is why I have issues with testing. At the end of the day I do not want to be in a position where we have 1, 2 or 9 disposal fields where we get jumped on in a few years from now by not performing, when we are doing our best by trying to solve the problem of water quality. Therefore the easier we can make our compliance with the requirements for consent the better as far as I am concerned.

KM – We can talk about the nutrients here from the whiteboard, one thing that I don't know is clear is if these ones here actually load the soil the same as these ones here, because these are more concentrated in one place, so in terms of the actual impact on site these ones here have the same impact because you are still loading in the same rate in terms of kgs.

AL – Except that the area required for all options was based on the same loading rate - the area was calculated at 150 kg N/ha/yr.

KM – So doing that is a little misleading when you are talking about the resilience of the soil receiving effluent because you are doing the same at every site on different areas. This is broken up into a number of different areas but the actual impact is the same.

AL- I wondered if we could get more acceptance with this option, (following on from what Andy mentioned) because if it is the community taking this on board as an alternative, they would understand that they are treating their waste on their land, and perhaps then you are not going to get a rejection of the land treatment system in the future because they own the system in a way - or maybe there could be a different ownership model here.

KM – Cost wise you have say $7000 per unit x 750 = $5M

AL – I don't think that it is going to end up by being any cheaper than the other options, but it should get the subsidy.

AB – I want to go back to the point that you just made Kepa in terms of loading weights and that was why I was kind of hesitant to get MfE to look at these graphs and say "that one passes and that one doesn't", because I am not certain how these calculations have been done, but I understand that the loading weights for options 2 & 3 was 150kgs of nitrogen/hectare but I don't know the loading rate for options for 4, 5 & 6 are. (AL) - They are all the same at 150, (KM) It is the performance of the technology that is being compared). (AB) So then in my mind I have some questions as to really what is going to get to the lake, because that's not shown in these graphs. My understanding is that we have simply taken what comes out of the system [for the graphs] and 150 kgs of nitrogen / hectare is what will get to the lake. If you have a land disposal system that achieves a whole lot, then I think that Kepa's right you can't just look and say that the technology says that that is what comes out of the tank so therefore that's what gets to the lake.

AL - That's right [the graphs only show the nutrients prior to the discharge to land]. When we do our options evaluation we have to be very clear in our minds that while the graphs show that this goes to land, we keep in mind what that land treatment system looks like, and where it is, and how much it is going to the lake. Rather than attempting to quantify it, we have a feel for it, and we know that in options 4, 5 & 6 (where you leave the grey water behind) that quite a bit of those nutrients are going to go to the lake compared to those options that have removed all the nutrients and have a controlled land treatment system, as we did not separate the nutrient removal achieved in the discharge to land out.

AB – So in view of that these graphs really don't tell us a whole lot.

KM – Yes they do, they tell us performance but they don't tell us the real answer in the end.

JB – Isn't the real answer that with time the nitrogen will go straight through?

KM - At the trials this morning they said that they are expecting 100% removal in the soil of nitrogen with a drip line (they have done the calculation and say that it will be taken up in the grass because of the rate that it is being applied at).

AL –If you have got nitrate in the discharge to land there is no way you will get 100% N removal

JB – Are these guys qualified in that?

DH – At 150kg – it's not the same output as a dairy cow, being concentrated it could it be that much better nitrogen? (AL) You have high nitrogen uptake in the grass especially. If you had storage, and weren't discharging to land when it is wet or when the grass wasn't taking it up, then you might get more P take. But you will have nitrate moving through when the soil is saturated though.

KM – I think that the point that you are making Andy is that in these ones there are still plenty of opportunities for refinement in the 2nd stage of treatment where it is being disposed

JB – The second stage treatment is not included in the estimates to date (KM – No but we did talk about it)

AB – That's what I'm thinking Kepa, what you started with here and Alison too so if we can get some allowance for soil treatment, but there are also technologies that can bring this down, why are we not considering those because they will give us another option which could be a whole lot better? (KM - Like in AWS).

KM –The big difference with Biolytixs is that it is not a water-based treatment system but rather air and worms and that is why it is so low cost and quite robust, so with those aerated water systems (AWS) they rely on a lot of energy, along with a lot of technology, and they actually create a waste product.

AL – The energy requirements would be quite high if you were to replace the Biolytixs unit with something that would remove nitrogen, and they can fail at any time. They are expensive to start with, so it would just be cost prohibitive to combine an OSET with reticulation to a discharge field.

GM – So we have got option 8 with 8 or 9 carbon bed systems (AL) – I thought that we might be able to get away with 2 perhaps.

KM – You might have a couple of small ones that take care of the cultural issues because on the constraints here you can straight away see what the solution is by looking at that.

GM – And again it goes back to the point that Andy, made we need to make sure of the performance of those beds and the removal of the land treatments to the land, and tell the community about it if we are going this way, because if we are going to be given resource consent it is well and to be practicable to be complied with in the long term then my good friend Andy will I give me an abatement notice saying that you are not complying (AB) – I don't do that sort of thing to you Greg.

DH – Wastewater denitrification beds where there is sufficient capacity, in cubic metres it could work.

AL – Yes. Carbon beds just wouldn't work here in Rotorua because of the volume and our very, very tight consented limit for nitrogen.

GM – You are probably looking at a 300 cubic metres of loading/day, Rotoiti would be about 500 cubic metres a day.

KM – There is a really big chunk of pricing that PDP did around the issues of the grinder system having the septicity. I went back and look through it and have some Biolytix readings, 97% of suspended solids and 97% BOD removal and that from the ground up, then where is the risk of it going anaerobic with the Biolytixs? (AL) –It is the leftovers sitting in the pipe line.

JB – Right now team we have something on the table that Alison has brought that has merit which we have not had on the table before or been out to consultation. There is a significant new component to it in terms of RDC considerations going back to your question Andy would RDC accept Biolytixs and that was 240 (+ or –) and this would be 740 (+ or -) units as compared to grinder pump?

AL – Council would not need to take the Biolytixs on board necessarily with this option. (AB) – But you want the subsidy.

AL – I think that you could get around the MOH subsidy scheme because it is reticulated post Biolytixs The MOH subsidy is around risks, and I think that those risks would be associated with having a discharge field on the property. With this option there is no discharge field on each property, so I think that we would be alright with the subsidy.

GM – So what you are saying is that the individual property owners would have to pay for their own Biolytixs? (AL –well potentially yes if we want to go that way).

KM – This is not a brand new option – option 5 had fewer Biolytixs all we are doing is saying that there are more Biolytixs which we were starting to say anyway. The other thing is last week PDP gave feedback and I asked about the carbon sand filter or something like that with nitrate, so we have already been heading that way, it is just the arrangement that we are changing with Option 5 but fixed.

AL- It is and without the grey water separation I think that we might get the subsidy.

AB – Before we go there though I still have a question around what are we doing about phosphorus if we go down this path?

AL – It is the same as the amount that is removed in option 7 for the phosphorus, but it is going to a site that we can control and wont 'leak', so the phosphorus removal is fantastic compared to OSET where the phosphorous is very poor.

AB – So really what we are doing is adapting up option 5.

AL – Yes, we are adapting option 5 to be better than option 7 and to get all the subsidies.

AB – So therefore we apply it at a better rate to get the phosphorous removal rate (AL Yes)

Andy Bell – You have actually got option 5 & 7 wrapped together with a down-stream disposal treatment. Alison's presentation as I understood it, was that the onsite treatment whatever that was, could be anything that complied.

KM – There might be some high tech units out there already. They are not thrown away are they? The owner would just feed out to the reticulation instead of into their disposal field. We could probably find out how many but I think that it is about 10% isn't it?

AB – We don't have to do the MCA now. I think what is really exciting, "Whoa", thanks for coming up with the idea Alison, but we are trying to have a touch of reality here and we are going to have some real struggles with some of the options aren't we? We are just looking at them from different perspectives, I will just draw a line in the sand - as long as you are fixing the lakes I am not sure that I care about a whole lot of other stuff. As long as we address the phosphorous and nitrogen why should I care if you have got a Biolytixs system or whatever?

KM – In regard to the "cultural", I have had a look at these overlay maps and it makes it very clear as to how things are going to turn out. Are you all familiar with how these overlay maps work?

(1) So you have got the two catchments, Rotoiti and Rotoma, the yellow indicates where the communities are and when you put these clear sheets over they give you constraints, this one gives constraints around waterways, springs, lakes edge which is the riparian margin and you can't go into any of those.

(2) Then you put this one overtop and it is the DOC Reserves which are a no go.

(3) Then you put this one overtop, the blue dots indicate all the registered waahi tapu that must be on the RDC District Plan files and if you have a look down here is where I have been saying that there are problems because Rotorua is this way right, that is a cliff that comes down to a little road and the onto the lake and there are caves all over the place right, so that's a problem. You have a look over Rotoma, you have got the reserve here but there are actually no blue dots therefore you could get away with one at Rotoma.

(4) Then there is slope elevation so there are some areas that are too steep or too high.

(5) Then this is the telling one, see all that yellow (AL – it is everywhere), that is Maori Land. (AB/AL – Argh) it is just about all yellow except where the water is, and that's what I have been saying that if you are not getting a solution that is consistent with what Ngati Pikiao want, then you are going to really struggle to get over the line.

(6) This last one is potential spots for disposal at a big scale, this is the place that was being looked at originally Greg (GM Yes) (AL – Rotoehu catchment, Curtis Road) and Rotoma are pretty much the same places that we have been talking about the clusters, because there is a smaller loading there are a couple of places like at Ruatau, Ruatau is probably the most difficult one because you can't go either way as you are restrained by cultural issues on both sides of the little valley and that's why we did the trial there. I just wanted to show you that because that is a really useful context of the physical and cultural constraints that we have got.

AL – Have you broken up the HUEs for each of those?

KM – It is actually already on the spreadsheet that I have on my computer, there are about 43 houses at Rautau.

JB – Right team, how do we go forward from here? – We had seven options on the table and we were getting a pretty good understanding of those plus or minus a few million dollars on options 4, 5 & 6. We had reasonable clarity on subsidy, RDC's community scheme with Biolytixs is still an unknown and now we have an option 8 with unknown costs, we then have some potential wild cards, the Biolytixs could be owned by the property owner and not be part of the subsidised scheme, we have some recognition over the line with the carbon filters accepting that they would be sustainable long term at scale to get the nitrogen levels down to OSET option 7 level, and question about P is still there for option 8 (or 5A). Is it 1, 2 or 9 cluster disposal areas, (KM - It is actually very flexible, Jim) (Andy Bell – If the cultural issues are solved, then it becomes a practicability exercise to work out what is the most cost effective.

{Later Note: JB - Option 8 is same as Option 5A with two names at this stage – We finally decided to call it Option 5A as it simplifies and enhances Option 5.}

AB –My question around this is why do we continue with 3 houses per Biolytixs unit still and why don't we consider the grey water separately?

AL – Due to the both volume and loading, and because the grey water has too much phosphorous in it, about 20%

CB – And for the MOH subsidy at Rotoma

KM – I was going to ask Alison, I thought that you were going to suggest that we can just take the septic tank outflow and fire it straight into the same connection system as the Biolytixs.

AL – You see that is the other way that you could configure it and use 1 unit / 3 households, but then you are still separating the grey water and discharging to the current fields close to the lake, and I think cost wise it is probably better.

AB – This tidies it up for everybody.

JB – It puts it back on properties if it is not a Council scheme, that individual ownership in operation of the Biolytixs.

KM – Can Council own the Biolytixs though on an individual installation, they could ah?

AL – They could but those units don't really fail in the trial I suppose if they are installed properly and inspected periodically.

AB - By making it a council maintenance scheme then it would perhaps be much easier to convince the authorities around subsidies.

Andy Bell – I agree with you there, but only if you need to, (that is the question I think).

KM –With the subsidy and if council has very little maintenance costs everybody wins.

AB – But there would be some that had already converted that wouldn't come under that scheme.

KM - But they would be exempt from the full cost because they are not putting the Biolytixs in, so the attraction for them would be they can continue with the operating costs and we own it, or we can replace it with the Biolytixs and know that Council will incorporate it into theirs because I don't think that Council wants to take ownership in a lot of different systems. If I was a landowner and I had done an OSET compliant system on my land 3 years ago, and I was given the option of upgrading like everybody else, or keeping my system and operating it (it has to go into this collection though), then I would be quite happy with that choice, it's not like it is a bad choice.

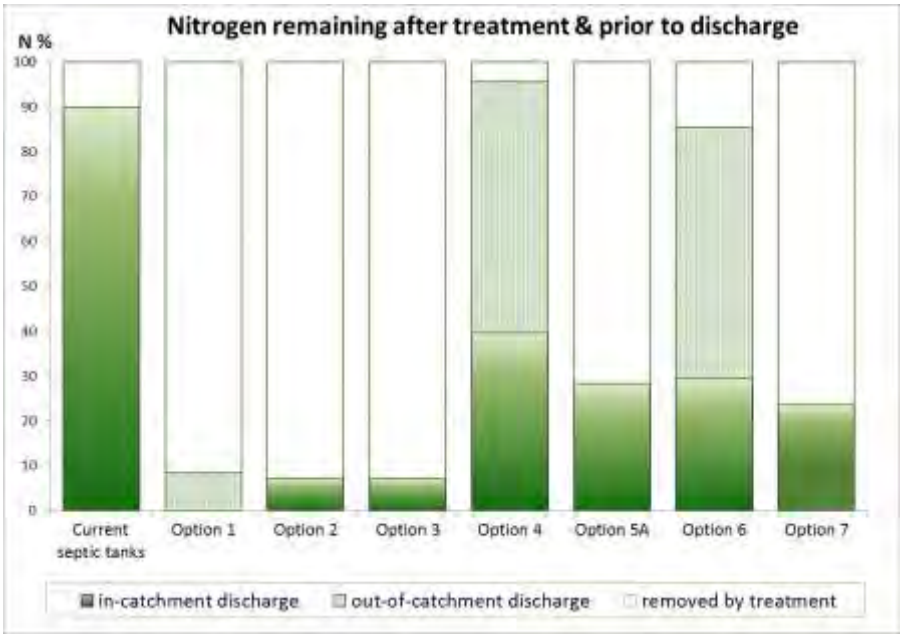
AB – So what I am really interested in then if we go down that track what are these graphs going to look like that's kind of the important thing isn't it. (AL –Yes)

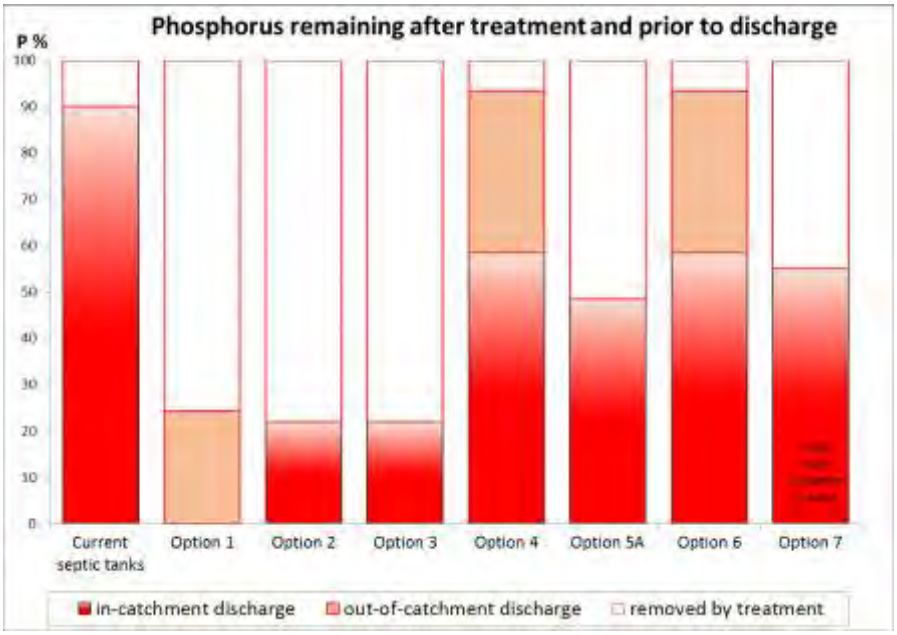
DH – That's got to be done at the point of land disposal.

AL – The graph would look similar to option 5 for nitrogen (63% discharge, while option 5A would be 60 % discharge to the cluster filter we go through that and then there is a significant reduction) and the same as option 7 for phosphorous.

Andy Bell – Can make sure that we are comparing apples with apples, if we are talking about discharge from a tank let's talk about that and if its discharged to the land in whatever form has got to absorb the balance let's be clear about that.

There was discussion around the calculations for nutrient removal from this option. The final graphs are included here:





KM - Do you put aeration in before the carbon-bed?

CM – If you increase the efficiency of the carbon bed before the nitrogen gets added, you have got 20% of nitrate and 15% of ammonia and you aerate it you have got more nitrate to reverse than the carbon for argument sake.

AL – You could but if you were to say the OSET because it is going to the existing discharge field and 20 % of them are failing you will actually get to the where the main is going to be.

CM -If you can propose a method to objectively get below what OSET is achieving, it is probably a plus, with just a little room for argument.

AB – But if we can't justify how we came to a number then we can't say it might be better that.

JB – Without Alum dose we made the point here in consultation yesterday that we can dose options 1, 2 & 3.

AL – You could Alum dose but you might not need to as you will find the P-retention in the soil is high enough when you compare it with others.

JB – Option 5A at the moment without this refinement and it is marginally more than nitrogen of OSET Option 7

AL – Yes accept that that is what goes to land but the land is a way better system because you can control it in the discharge fields.

AB – I would have thought that you would have had a lot different options of discharge areas that you are controlling because you could do lime amendment of the soils.

AL – There is a lot of flexibility to add things on if we wanted to.

AB – With that line amendment you could get some really high P reductions Alison (AL Yes absolutely) because my concern is that just relying on our natural soils here, some will be good and some will be very poor, so and unless we are prepared to do something to amend that with some of the pumas soil we may end up getting very little phosphorous out.

KM – We have flexibility though when we get to that point, and once we do the analysis of the soil for the disposal site we will be able to add Alum in if we need to, but if we don't need to, it is a bonus and another win for everybody.

AB – We have to remember though Kepa what the cost of that will be so that the community knows before we get there. If we run a plant like options 2 or 3 we build 1 or 2 alum basing plants but if we run the other plants with 9 clusters then we will need 9 Alum basing plants. (KM – that would be more expensive).

JB – That is not the proposal at present Andy.

CM – For option 1 though, when we take it to the steering committee as 1 but suggesting and acknowledging that it is and adaptable solution split up means be cultural or other considerations so it might be 3 it might be 4, would that be fair?

KM – Yes I believe it would because we are going to have much less problem moving it around after it has been through the Biolytixs because I think that we can argue that the faecal matter isn't being moved you can show that with a "worm cam" with the worms eating the stuff.

JB – That's the normal operation, the unproven is the toilet waste only to the Biolytixs, and after going to the Vermiculture Worm hikoi at Kinleith last week and finding out what the worms can't take I am pretty worried about that straight faecal matter particularly once the urine is removed the strength of the organic waste, salt surface tension and the pH, because at the moment we have 2 options hanging on it. OK Alison, we have got a reasonable understanding on what this might do nitrogen and phosphorous wise, and I still have some nervousness about carbon filters and wish to put that on the table, where do we go from here trying to bring this together, we don't have an idea of costs, or of various components? Chris has rightly brought up that it could have a whole lot of flexibility on the centralised scheme, 2 schemes, or a number of clusters, we have a pretty big one on the table about 700 odd on site treatment units as different from grinder pump units, and whether it was a council scheme or not, and who owned and operated those.

CM – If we were to look at the two lakes separately it wouldn't necessarily be the full 700 odd as Rotoma could be a conventional central treatment, we could use "this" option for Rotoiti and Council's preferred option in terms of Biolytixs units might be around 430 odd, which could be attractive.

JB – I understand that and that's the adaptation of scheme 3, the concept of scheme 3 pulling it back to scheme 8 or 5A.

GM – Why would you want to do that?

CM - Because of the cost difference & subsidies of the two lakes is worked differently, and the issues around nutrients differ and there are a lot of advantages.

GM – In terms of the lake water quality are you prepared to get a lower performance from one lake against the other lake?

KM – Well yes, September deadline is the critical time for Rotoma and the MOH subsidy, because if we put forward a composite solution that takes into account the cultural issues and a tried and true technology option 3 type of thing, combined with this new option 5A, if we put this up as the option we have decided on and we know that we can reticulate the Biolytixs, if we put it up as our solution the we have to deal with the cultural issues that leaves it there as an option should we find out that the costs are really competitive and Rotoma want to go that way instead of MBR's. It is actually giving us an extension of time, it keeps us in the game with subsidies, we do the design for a culturally constrained cluster, so we do that and get prices, we compare it back to our fall-back position which is option 3 and if it is going to out-perform it then we just say hey community we are looking at this combined solution, it is a mix and match in terms of the proportion, do you want to go this way or that way, then they get the choice with all the information.

JB – We have to put this on the table team because as a contra view to this that stands alone is to go to a single scheme, but you have to do it all now to maximise the cost advantages and that comes into that debate. So how do we do this from here on in? We have not really debated options 1, 2 or 3, we have been around the houses and have a development out of 5 & 6, and a good understanding of 7, should we just put our individual key thoughts on the various options and try and get the mechanism through and go to MCA and MauriOmetre.

KM – Can I just say that with what we know now with subsidy availability, performance issues, RDC's preference around what they are wanting to do, option 4 has gone hasn't it?

JB – You said that last meeting it took me by surprise because it was the preferred one from Craig and yourself first off.

KM – You know we are learning, the thing about it is I don't think option 4 will fly and I am just being honest.

Andy Bell – I agree with that, if you have got any options that are no longer options, get rid of them.

JB – OK we are running out of time. If we get down to some serious voting I think that I have to say that first and foremost the core TAG have the vote, with the views of others taken into account for a wide vote, if we actually get to there today, but let's hope that we don't.

Andy Bell – That's the way it should be Jim, the TAG was set up to do that.

JB – So can I therefore ask if Option 4 is out of the picture? If so, I want some reasons?

KM – Cost and nutrients I don't think that anybody really likes it, its spraying, its doing all sorts of stuff (AL – And social issues), (JB Cost, nutrients, what about public health for #4). (AL – It wasn't going to beat the subsidies.).

KM – I am just trying to remove it so we can narrow it down because if we do it on fewer we are going to be able to do a more thorough assessment. So can we look at #7 and say ok 7 is there because we can't do every property in the catchments. (AB – Yep that's a comparison), it has to be there for effluent anyway, but we don't need to access it for that reason. (JB – It's our benchmark you might say) but we can do that one after the meeting, because it is a nice to know but not critical, which leaves us with 1, 2, 3, 5 & 6. In terms of 1 & 2 they have the biggest difficulty culturally, option 3 I did my own analysis and you could get away with that if you took communities out of the mix, like Ruato, Hauparu Bay, Curtis Road and Doctors Point it would resolve your cultural issues, that leaves a big chunk of Rotoiti which you can pretty much do as 1 or 2 (maybe even just 1), leaving all of Rotoma (except Doctors Point) that you can do a 1, you still have an option 3, if you try and get that to option 2 again you have constraints from the drawing connecting those 2 and you have catchment to catchment transfer of the material. So I would suggest option 1, 3, 5 and we have an analysis of 6 from when we first ran it (I think). (DH – Is option 1 definitely still on the table?)

JB – From a technical and a lakes water quality perspective, from a proven, reliable, acceptable technically and operationally, from a cost perspective definitely and I would suggest from a risk prospective, those are the things that I put in the technical basket that we are trying to call on today, and from my point of view it is in most definitely is in the basket and those things need to come through the MCA and the decision very, very clearly. We hear the cultural issue but today trying to look at the basket of technical things we can conclude or reference the importance of technical going back to our starting point. So unless TAG convinces me that that is not the position then that clearly is the positon of 1, 2 & 3.

Andy Bell – I thought that option 1 was a "goner" from a cultural perspective and that everyone had accepted that a long time ago. But I understand that the steering committee asked for it to go back on – am I right?

JB – Yes they have taken it back in because it was the cheapest and there has been some discussion at Ian's last committee meeting it was not said that it was a "No no", in fact Fred questioned Greg about the septicity issue, otherwise the indication I got was that it is a possibility. So back to David's question, this is very important about how we (prep is) progress our assessment and the recommendation.

KM – Just on option 6 the suggestion that I am getting from the feedback is that MOH subsidies are out is it because of the urine separation or because of the site disposal?

JB – Both, as you still have stuff on site, urine held on site, the question of the set-up of the toilet, so they bring up risks to put in the basket. In terms of the subsidy thing, first and foremost the public health, then its environment and then deprivation index.

KM – Can we do an assessment on 1, 2, 3, 5A & 6?

CM –Do we need some estimated costs around this with perhaps a combination of figures from other options?

GM – I think that we have a fair bit of the costs already though.

AL – Costs of site of option 5A

KM – Option 5A is going to be lower of that I think because there are a bunch of things here that are questionable and would take quite a lot out because some of the houses would already have systems

CM – But you have 3 times as many Biolytixs systems to factor in.

AB – But you are connecting much more simplistically aren't you?

CM – Is it unlikely to be more costly than the existing options

AL – I would imagine that it is unlikely to be more costly, but more likely to be comparable.

KM – It shouldn't be too difficult to cost because you have got the connection, Biolytixs, the denitrification unit but more expensive operational costs.

JB – You have got the sustainability matter of replacing media and things. (DH The media works fairly long term I think)

GM – Do we have an example in NZ of 300 cubic metres/day being loaded into denitrification beds.

AL – Yes one just out of Taupo.

GM – Do you have any continuous performance measures available?

AL – There must be some available, but will be worse than what we could achieve

GM – My biggest problem with natural systems is like similar to what happened with the Land Treatment System we could be very optimistic with the perimeters and if we do that we might be setting up ourselves for failure. How long has this been going on for?

AL – I saw it about 5 years and it was performing very well then.

CM – Do we need to get into the specifics at present or can we just count it as some type of denitrification?

KM – I think there is a way forward, what we put up is a simple solution which I think is going to be compared cost wise it only has to be on par with the competitors (right) because it is solving issues that others can't so the actual design can wait meantime, as it is more critical that we know eligible for subsidies, because we said + or – 30%.

Andy Bell – I think that we have just got to get our heads around the implications of what it means to us Kepa, you know we are happy to own the grinder pumps and look to be honest years ago we would have said no to that. And as Alison said she couldn't see any reason why we wouldn't.

KM – What are your trial results for Biolytixs Alison?

AL – We have had two trials in now and they are so confident you can go in, install it and not touch it

JB – The trash and the non-degradable trash at the Rotorua WWTP trial unit is screened sewerage isn't it? (AL -Yes),

KM – We got told off the other day at home, when the guy came to do his annual thing he said stop flushing condoms down, but we had visitors who did not know any better. You could just put a sign up. It wasn't a "biggy".

JB – I want to break in 5 minutes as I need to contact Ian our Chair – Alison are we ready to cross over after lunch to do a full and frank comparative in a logical way with MCA?

AL –I think that we are OK, I think that we could run through this with the different options, cost is one of the criteria and if that information is coming out later, it's a quantitative thing should be easy to make an assessment on.

JB – Greg, how are we going to look at a 5A from a cost point of view, are we going to say that it is going to be the same as 5 as we have lost some components and gained some more.

GM - Could be, subject to confirmation, I can just ring Rob and get Warren to run it. If we are running say 8 or 9 clusters (AL – say 4).

KM –I think we could do 1 excluding Doctors Point, I think that you could do 3 small ones and you could get away with the rest as one on Rotoiti,

AL – 5 in total.

JB – So in summary what I am hearing is option 5A from a nitrogen point of view it is going to come in marginally above OSET right Chris, (CM - Assuming there is no additional aeration) from a phosphorus point of view it's about OSET, from a cost point of view it is about 5 (with the subsidy in).

***Sorry but four of you were all talking at once ***

JB - So we are going to assume that this is somewhere in 5, one of the key things is that we compare these after lunch is its leaving land application areas out there being 1, 7 & 8 and that covers assessment, and that pretty important criteria from RDCs point of view about where this sits from the scheme point of view over goal 8 of the committee is proven in accordance with you things now. So have we got an understanding now of where that sits Alison I will put it on the table and you have right of reply and then we will break for lunch.

AL – While we looking at the costs/household this $24,600 for option 5 doesn't include the MOH subsidy and if there subsidy is 4.6M and there are 300 houses this takes the subsidy to $14,000/household which should take option 5 down to around $10,000/household for Rotoiti so it is looking cost comparable. (AB – Have you taken into consideration the Regional Council subsidy there?) AL – I don't know we need to look at that one. (JB) No it is on the back page.

KM – RDC would need to argue that the extra costs to the ratepayer because they didn't want to have it, that's what it would come down too isn't it.

JB – Before I ask Kepa to bless the food, I have a standing engagement to ring Ian as he would very much like to come in at the conclusion of the meeting what do I tell him in terms of what time? Shall I tell Ian 3.15pm for a debriefing and that gives us a strong need to have ready some pretty solid resolutions.

Break for lunch.

10. MCA ASSESSMENT

JB – In terms of facilitating the MCA Assessment it wasn't appropriate for me to facilitate and take part in because I will have some views of course so I asked Alison a non-core member and gave her a wee lesson but she picked it up and has adapted it and is driving us through the criteria that we have synthesised to make it as clean as we can mark from the committee's goals and this table to.

ACTION* (JB - Alison - Please check MCA Section especially)**

MCA – The criteria synthesised

AL – I had another look through the last time that we ran it to start off with, where we were looking at the lakes and how we were scoring and we ran into problems trying to think what criteria specifically we are rating and I pulled the fundamental criteria for that so in the red column (the 3rd one)- goal 1 for example, I thought what we are really saying is what extent the option reduces the sewage drive nutrients going to the lake, did everyone had a chance to look down those because they are the fundamental questions that we are trying to score each option on. What we could do is just go down these to make sure we are evaluating, so does everyone agree?

Goals from the Steering Committee

Goal 1: -Lakes Environmental -

Extent to which the option reduces the sewage derived nutrients going to the lakes. (This is how we are going to score it, there are other aspects to that in the next column over).

Goal 2 – Tangata whenua –

Extent to which the option best meets the cultural needs of tangata whenua (for Steering Group and consultation (We have suggested that we won't use the MCA to deal with this because it will be covered by the Steering Committee).

Goal 3 – Community Environment

Extent to which the option - has acceptable impact of infrastructure and operations on the community environment (This was the most difficult one to put a criteria to, so the thought was that we are looking at the community environment ensuring a safe, healthy environment for the communities, separation distances from the sewerage scheme and infrastructure, maintaining amenity values, odour, noise, and protection enhancement of other aspects of the lakes water quality other than the nutrient loads, so that we don't double up on that for recreational values. The thought was that when we score we look at the extent to which the option has acceptable impact of infrastructure and operations on the community environment.

Goal 4 – Public Health –

Extent to which the option best safeguards Public Health

Goal 5 – Statutory –

Degree of difficulty in obtaining the Consents and other required approvals/agreements (so I thought that we are looking at the degree of ease in obtaining the consents and other required approvals and agreements (e.g.: Use of land).

Goal 7 – Costings –

Extent to which the option is affordable to property owners in Rotoma/Rotoiti - (looking at Rotoma and Rotoiti separately).

Goal 8 - Social -

Extent to which the option - has community support (for Steering Group and consultation) (We will leave that for the Steering Committee).

Goal 9- Technical–

Extent to which the option has proven, resilient, flexible, operatable, compatible technology-

Any comments – are we all happy about answering and scoring against those questions that are going to reflect the goals of the Steering Committee?

MCA - for Rotoma

Lakes Environmental - Weighting

JB – The protocol by and large is you do the weighting first, otherwise you start prejudging it against your ranking.

(1) **Weighting – The extent the option reduces the nutrients going to the lake –** (we need to weight this to give us a value of 1 to 10 as to how important it is. **(KM – 10**) (JB - definitely, otherwise they will wonder what we have been doing)

(2) **Cultural - We aren't doing a formal evaluation of this option ourselves** (AL - I will put a note in, as this is not weighted or included in terms of looking at the different well beings, and needs to be added in afterwards). (AL – 0 for now)

(3) **Community (impact on the Environment) - The extent that the option has an acceptable impact of the infrastructure operations on the community – (KM, GM, JB, DH – 4, 3, 4, 4)**

(4) **Public Health – The extent that best safe guards Public Health** (what you can't do here is imagine that it is going to get the subsidy or not because that is going to affect the cost) **(KM , AB, DH , GM, - JB – 7,6,4, 8 & 8)**

(5) **Statutory – How easy is it going to be to obtain the consents and other approvals and agreements that are required?** (Consents & Use of land,) (**AB,GM, DH, KM, JB – 8 ,8, 8, 10, 6)** - GM otherwise you want have a scheme.)

(6) **Cultural:** - so we are not going to consider the Cultural impediments to obtaining a consent. – JB- If we are consistent with our definition on Technical. (KM - Is that wise? If they take our advice and we ok the consent and they turn around to us and say you didn't foresee any problems).

(7) **Costing** – **The extent that it is affordable to the property owners** - (This was a goal from the Steering Group, however whether it gets subsidies or not is encompassed in the cost for the option so we really just need to look for the cost for the option, otherwise we will be evaluating that aspect twice. Do you all agree with that? The subsidy is only an economic parameter, as it is covered under the next one**. (AB, KM, DH, JB, GM -I will agree with Kepa for once – 9, 9,8,8,9)** (AL - so the thought is that we are not evaluating on social consideration, only technical affordability (JB – correct).

Social – (AL – The thought was that we are not evaluation social considerations, but technical considerations only), (AB – There are things that are not Cultural but they are Social, should we be involved in that or not? (JB – No we have to be consistent with both Cultural and Social, Ian has made it quite clear at all 3 consultation meetings that the Cultural and Social viewpoint are coming from the community and steering committee.)

Technical – The extent at which the option has proven resilience or operatable technology. (How proven, resilient, flexible, operatable, compatible and risk free – how important is this technical aspect?) **(GM, AB, KM, JB, DH – 10, 10, 10, 8, 9).**

AL - We have our weightings for Rotoma

Tag recognises however that in some isolated individual property locations where it is not practical or economic to connect to a sewerage scheme then OSET options (Option 7) may be the appropriate solution, or the only solution.

The MCA assessment criteria were based on the RRSSC's technical goals and weighted on of a scale from 1 = lowest to 10 = highest. The criteria and their weighting (as are also recorded in Appendix B) are as follows:

- Lakes environmental = 10
- Community environment = 4
- Public Health = 6.6
- Economic = 8.6
- Technical = 9.4

JB – I wish to reflect on that, the only comment that I will make is that we don't have a huge spread, but that's fine as there is a reasonable spread, with nothing below 4.

KM – My observation that it will really is a result that will be determined by the number of criteria and where their focus lies, you have more in one type of area which is good that the MOH subsidy does not duplicate, but I think that there are other matters that overlap a bit. (AL – You mean that we are overweighting some of the four well beings, is that your feeling?) (KM – I think that with regard to Public Health and Community Environment, one is the ascetic perception of Public Health and one is the actual perception of Public Health. Odour and other things like that are public health issues

MCA Assessment Scores for Rotoma

Now you need to rate this from 0 – 5, 5 being the best.

GM – Are you comparing them relatively? – (JB – Yes, Alison, if you don't mind me butting in, often the best way is if we pick the best and the worse then you have got a benchmark to go between)

1. GM – (**4)** (AL – be mindful that some of it is going elsewhere)

2. AB – (**4)** (AB - It is not clear where it would go to either Rotoiti, Rotoma or Rotoehu in that option we don't know that yet)

3. CM – (**3)** (As you have the waste from each catchment when combining the two catchments, which is bad for the receiving lake and good for the other lake.(KM) - I agree with Chris because you don't have to take into account Rule 11.) (AL – Are you counting rule 11 as a costing?)

4. (N/a)

5. 5A – **(5)** (JB –Is this about 5 on steroids? The same as OSET and it could be 9 clusters or 1 area) (KM – I think that if it has a carbon bed though it would be ranked a **5**).

6. KM – **(2)** (JB – you are at least taking the disposal other than grey water to clusters back to the lake a bit) (CM - OSET has higher removal efficiency than Biolytixs, you still have grey water).

7. KM – **(2)** (KM because it is beside the lake again). (JB – Odour is not an issue in Rotorua as I told the Mayor once).

Community – The impact on the community, wherever it is going to have an impact (JB – This is not water quality but visual odour etc. and generate 1% more odour.)

KM (I am assuming that it is going to go into the Lake) (JB – this is a social thing that we are not marking today) (AB – It will get a tangata whenua score too) (AL – It is the environment other than the lake, the air and the land then isn't it.) (KM – Do we have any instances of non-compliance discharge, or search overflows with in the reticulation system Greg?) (GM Yes) (Andy Bell – sometimes they end up in water but not directly into the lake.)(AL – During the storm in August 2008, we had really heavy flow, and we overflowed here at WWTP and where able to bund and pump back in so that's about as bad as it can get, the same thing could happen at pump stations as well, but not often.

1. **(3) (JB /AL - Please confirm all these ratings, as I got somewhat confused as much discussion took place)**
2. **(3)**
3. **(4**) (AL – Rotoma can be a 4) (KM also has aerial spraying)
4. **(5**)
5. **(4)**

6. **(1)** (more reliable than 7)

7. **(1)** (AL - Once they fail they have everything going into it – they can overflow just as easy as septic tanks.)

8. **(1)** Public Health (AB - I can't see that it is any more the top three) (AL It is less likely to fail than a grinder)

9. **(1)** OSET - (They are more likely to overflow than grinder pumps.)

10. (5) Statutory - How easy is it going to be to obtain the consents and other approvals and agreements that are required?

(JB – We had quite a cut in this in this document, that table in the document ranks them with the 9 that weren't ranked and they were substantially tangata whenua, Maori cultural policies in principles, ranked from low to high difficulty and one comes out as a very substantial winner.) (KM - You haven't got a consent for that yet have you?) (AL – No, but we are going to have to get one.) (JB - And that is a very good point because it is a 1% input into that consent, so the consent is needed anyway). (KM – I don't know, that is so subjective you can't actually say that this is a dead cert when you haven't. got one). (AL – We can be dead certain that we are not going to discharge to the lake, we are going to be making upgrades here and have a consent to do something.) (KM – So now we are screening our own performance as a TAG) (JB – To be fair Kepa that is a damn good point and we need to note that – assuming that Rotorua will be able to obtain its own consent) (GM – Subject to confirmation) (AL – We are looking at the ease of getting a consent, it could be very hard) (AB – With Resource Consent now Alison, do you have restrictions as to what catchments can feed into that consent?) (JB – The answer I get is no), (AB – I think that there will be a lot of consideration of that through the new process as to what is coming here as there has been so much uncertainty). (JB – I have drafted an email about that last week which is still in my in basket, the CNI agreement, the existing consent and variation to the new consent so leave that with me). (GM – There is no restriction on the agreement) (KM – If someone wanted to stop this different TAG and the process of getting a consent they would go after bringing additional load into the catchment). (AL – With the new consent for here, there is a long term waste water strategy, so comments like that with consideration for it to go into that area could be an option). (AB – In terms of a number though, I would argue that it's a **(4)** for this factor, so is that where we have got to? (KM – It is quite likely that if it became a contentious issue the court is going to say, you have to do something, you can do it for what you are doing now but nothing extra, so I think that it would be considered an extra).(AL – Could be, so it is a **(4).**

Options 2 & 3

(AB – What do the numbers down here mean?) (JB – It is the number of planning instruments that they have rated as low, medium or, high difficulty to get over the planning hurdle, so in fact 2 & 3 have been rated the same, which surprises me a wee bit. It includes a whole range of issues including fresh water policy through to air consents.

-So how difficult is it going to be to get all the required consents and approvals for a single treatment plant and single land treatment system?

(JB – **(4 or 3) –** You need at least 3 major consents. (AB – I am not sure that I agree with that though, because if it overcomes a whole lot of issues that the community are unhappy about, then, it is easier isn't it? The number of consents isn't relevant and I would give it **(4)** for option 3. (KM – The difficulty is that cultural issues are huge and are not being taken into account. It is a bit of a red herring at the moment because if you haven't got cultural challenges in there, then it is just a non-sense really, because the reason it got knocked back last time was on cultural grounds and it is not the tangata whenua issues but the statutory hitting the hurdle. It is not consistent to say that the cultural doesn't affect the statutory, that will be what determines it if it goes to court, what will happen is that they will stack up the cultural against the real need for it. They have already made a decision once saying that the cultural need "Trumps" the public health and the environmental need, and that was the outcome.

(AL – What's your feeling on the ratings?) (KM - I don't think that we can rate it without a cultural aspect in there because that's the make or break.) (AL – That can go back to the steering group? Is that the feeling because it hinges on the cultural?)

(AB – I reckon that we should still rate it with regard to the cultural aspects.) (DH - I think that we should step outside our cultural boundaries as we are being so boxed here, the expertise is here along with the knowledge and experience, so why not). (AB - I agree),

(AL – OK with Kepa's considerations of the cultural considerations). (KM– Jim and Greg have heard them they are as follows but not in any particular order):

1st – Discharge to water

2nd – Transfer of faecal matter from catchment to catchment

3rd – Desecration of waahi tapu

GM – I know the cultural concerns but are we able to make a call on what the scorings will be on each option

KM – I think around the statutory compliance we know that it is going to put us in the danger zone.

AL – What if you were not to give us an absolute rating but look at it relative to each other, are any going to be easier than others.

(KM) 1st gets across on all three

2nd gets across on two to them

3rd gets across on one of them

(Therefore, 3 is better than 2, and 2 is better than 1 in terms of the cultural)

JB - Let's go back to what our recommendation is going to be and that was not to include cultural and social, so we are caught betwixt and between, we haven't done the cultural here and we now have the statutory of the other technical advisory committee and I think that we are in quite a dilemma. We either do what we were doing, and have an absolute very strong message or we delete statutory and note that we didn't go there because there is so engraved in the technical documents with the cultural policies. (KM – And a past decision) (JB – I think if that's the case we leave it). (AB – I argue the other way, I think we should have cultural issues to make a decision on it, but that the statutory has a whole bunch of other considerations, how tough is Rotorua going to be, there is a whole lot of issues there, but there is a possibility of a way through, I reckon that we should rate it.) (JB – They are the others). (GM – If you consider that all of them have the same cultural and disregard that and just look at what you are saying, can we do that?) (AB – I am not disregarding the cultural, I am bearing that on my mind when I am thinking about getting through the consent process but it is not the only aspect that I am thinking about. But my view on something like statutory is how easy it is to get through the process, is linked distinctly with what the community think about the options. So you have the total community and the Maori community that has a particular view). (JB – Partly Andy you can have a whole lot of people that have the same perceptions and way out ideas at the end of the day carry hardly any weight because it is the planning instruments you are doing it under that, so unless their concerns fall within one of those planning instruments, perception carries very little weight to my understanding in the environmental court. (KM – This group are the main land owners in the community and they have got the treaty on their side so it is a hiding to nothing) (RR – From the side line here I am thinking two amazing things that sit in the same basket here, although they are related they are actually different because there is a different scoring between them, but if you bring in the community or the cultural issues you change the whole picture, can't you split them into 2 columns you show both of them otherwise one will not obliterate the other you change the whole picture.) (KM – One is meeting the legal requirements and the other one is the degree of acceptability of the actual performance.) (RR – So if you were to split them you can show both, but if you combine them one overrides the other) (GM – At this stage we are just assuming the cultural issues, we don't know what the community will say.) (KM – We got a good idea from the environment decision, it is all there in black and white) (GM – We are starting all over again, so we are just assuming.) (KM – Ngati Pikiao is not going to change their minds on those issues.) (JB – Let them work through it the way it has been set up we value what you are saying but I think that we flag the statutory column). (AL – OK I would be interested how you would rate them from a Ngati Pikiao prospective even if we don't include them). (KM – There are a ton of cases of case law where the sewerage on water has determined a whole lot of schemes that have been cancelled. – but that only applies to option #1 that goes into the lake.) (AL – How would you rate the options in terms of best to worst?) (KM – 3, 2, 1 – 3 because

you are not transferring them from catchment to catchment but you still have the issue of the Ngati Tapu, but if you insist that you include those out at Doctors Point through the lake, Willie Emery said at one of the meetings that I was at, that that is not going to happen, the small ones at Ruato they were visited by the Environment Court given the court cases.) (AL- And the other options are on a par with what?) (KM –The cluster ones can avoid all the cultural problems because that is why they are designed that way. OSET avoids the cultural other than you have got a discharge onto the lake which is contentious with the old septic tanks) (AL – So comparable with option 3 Ok.)

And given that we were going to give our minority view points through to the steering group do we want to include Kepa's ranking on those to pass through on the minutes, even though we are not including them on the MCA, as some sort of guidance from a cultural prospective? If you were to say best to worst given the cultural considerations and the ease of achieving the consents how would you rank the clusters (KM – In terms of clusters I would think that the cluster systems are able to address the cultural problems and then options 3, and 2 and 1 in order, OSET probably about the same as option 3). (JB – and that will be recorded in the minutes).

Andy Bell – I can understand that it is a really difficult situation, and I can understand you not wanting to be definitive about the cultural issues and leave that to the steering group and their advisors however they decide to do that. Statutory I think is a little bit difficult, Kepa is correct saying that the two are intertwined, you can't have statutory approval unless you have cultural approval, we now that, that's where we have been in the past. Accepting and understanding that it would be really nice if this group could give some kind of advice on the statutory in ranking but if you are not comfortable with that then notes, because it don't think it would be proper if it was left "blank" coming from this group. So I believe it would be best if you put the comments down to give guidance or appreciation given back to the steering committee. (GM – If you follow the report from MWA's in terms of advice do we agree in terms of getting the consents?). (Andy Bell – As far as I am aware, option 1 for instance, does not need a consent under the RMA, as it will be pumped back to WWTP in town, but then you have a whole pile of cultural issues on the way, going out of the catchment etc.. On one hand it might be very easy and on another it might be extremely difficult. I believe that it would be reasonable and proper for the steering group to get recommendations from this TAG of what those sorts of things could be)

(JB – OK, so the way we can do that is what Alison has just distilled from Kepa and include that, so that the undetermined ones we put the policies here but it is not up to the MWH's to mark them so here is Kepa's take on that basket as they are all cultural and tangata whenua Maori cultural and here is our consideration key planning instruments. That would go into both the minutes and to the report to Ian's committee. OK core team are we happy as that then allows us to handle the statutory column?) (KM – So we just park that until they come back to us then.) (JB – No, no this page will go in our reports committee and minutes).

(AL - We are looking at the economic impact to the householders at Rotoma, so we refer to the cost table for Rotoma, we have $13,000. for piping into Rotorua, how do we weight that?) (KM – Can we have the % difference – if you have got 25M into 26M the difference is 5%). We have got:

Option 1 = $13,000 **(5)**

Option 2 = $15,750 **(3)**

Option 3 = $19,650 **(3**)

Option 4 = N/A **(0)**

Option 5 = **(5)** (comparable to option 1 without any costs, that's assuming subsidy)

Option 6 = $35,900 **(1)** (no subsidy)

Option 7 = $14,100 **(4)** (JB – We need to watch as these are capital costs only, with OSET machine costing about $600).

Technical

(KM - What's the construction of rising mains sewerage Jim, 2000 -250 HDP and quite flexible and double sleeved in certain places.

(GM – You have got an operating pump and a standby pump and all the bells and whistles. (5, 5, 5).I hear that the performance of those systems are quite ok but this will be the first time we use the reticulation system so for me I need to know firstly what will it cost, secondly will it perform according to what has been said that has been indicated especially the carbon beds which I am not very familiar with at this level. Systems that at 500 – 300 cubic metres a day like wetlands usually short circuit the flow and so their performance will depend on how you spread the flow, which will be a very challenging design issue. (AL - Nutrient removal performance level) (GM – Yes and its performance as well, so to me it is unproven at this level.) (KM – There is no question about the Biolytix's performance it is more about the denitrification bed isn't it). (CM – Yes you need to bear in mind that the cooler is almost a swimming pool size, being 50m long x 4m wide and the Biolytixs effluent is higher than SPR. (GM – I am managing it so I might have a bias for nitros systems, I want my plant but when I have issues I just turn it up when I have issues protected by other outside factors and I have seen natural systems fail, if we are going to go this way we need a very comprehensive technical evaluation and make sure it will deliver and that the operational issues are identified and replace some sort of operational measures to work together. I wouldn't score it as a 5.) (KM - If it fails how long does it take to sort out, is it intermittent or is it catastrophic, is it finished?) (GM – It depends, it could fail straight from the beginning, I set up a wetland in Whangarei and we had short circuiting from the start, it will be different from the wetlands. (KM – The reason I asked the question Greg is that we are going to locate it some distance from the lake so if we had something go wrong what sort of time have we got to sort it out before it becomes a problem?) (AL – The thing is what could go wrong with it? Say nitrogen removal say, it is only one component of the system because the Biolytixs is solids removed then its land treatment system from it, it would be operational it wouldn't be a risk to the lake necessarily). (GM – I just want to dump in some optimism, we might end up with the same problem we had with the land treatment system, so we need to be going, if we are going to seriously consider this I would say let's do a c) .(AL – do you want to give it a number Greg?) (GM probably I would give it a (**2)**, you might disagree with it, but it is a natural unproven system from this perspective) (JB – It crosses over with Andy's question this morning, we does it sit from RDC's point of view with these 740 Biolytixs, leave alone the X number of clusters, because that is part of this criteria). (DH- **4**, AB - **4,** KM – **5** (because I own one, and they are brilliant), JB – **3**). (AL – It is hard because you are judging 3 components). (JB – I am acutely aware of the time, we have a Chairman coming very soon). (AL – are we all happy with **(2).** (JB – I am on record as saying that Biolytix just for the faecal waste, (no screening) I could even go a **(1)** (AL- What we see here is that they are tested under optimal conditions with screened sewerage and a constant flow so just bearing that in mind).

OSET (AB 1.5) (DH 1) JB 1) (KM 2) (GM 2)

MCA was worked through for Rotoma and the outcome is appended -

<u>Attachment #3 for Rotoiti</u> (Appendix B Assessment)

In terms of Rotoiti, the impact on the lake given that we have considered that everything would change – is that correct?

(KM – What would change would be the question to ask, all lakes were considered, the community, the environment,

<u>Public Health</u> (AL – Any changes?) (JB Drift issues are a function of a whole bunch of things but substantially the bug count and Taupo consent is a benchmark for that, what are the key receptors around those boundaries and consent conditions with wind cut off speeds etc., but Taupo has different buffer zones for different bug counts.) (KM – So taking into account elevated where the houses are you are going to get prevailing winds that are going to blow the stuff off over the houses I think).

(AL – So Public Health needs to be dropped from a 4 to a 3).

<u>Economic</u>

- **<u>Relative Costs</u>**

1. (4)
2. (3)
3. (3)
4. (0)
5. (3)
6. (2)
7. (2)

Technical

1. (4)
2. (4)
3. (3)
4. (0)
5. (2)
6. (2)
7. (2)

Attachment #3 for Rotoma

MCA was worked through for Rotoiti and the outcome is appended The overall MCA ratings for Rotoiti and Rotoma are as follows (whiteboard image appended Attachment #4

Rotoma	Rotoiti
Option 1 (3.2)	Option 1 (3.2)
Option 8 (2.9)	Option 2 (3.0)
Option 2 &# (2.8)	Option 8 (2.9)
	Option 3 (2.7)

A lot of discussion followed…

AL – Does that mean from a technical prospective and from the technical advisory group we would recommend Option 1, 2, 3 & 8 and not recommend Option 6 & 7? (KM Option 1, 2, 3 & 8 as the preferred options, Option 6 we do not recommend, & 7 is backup when we can't look after them any other possible way). (JB – From a TAG point of view we want a very clear cut recommendation as a front runner, based on technical) (DH – You say that you want a front runner – we could be made to look like fools if the front runner gets taken, mooted and then over turned.) (AL If you say 0.3 is significant and less than that isn't, then we don't actually have a fore runner).(AB – I have always wondered why we have to choose one option, because as technical people there is always a few options which we have narrowed to four options. If you want my opinion on that, I think that we have come up today with an option that might not be the best for getting the lake nutrients down, but it might get pretty close to there, but have brought up an option that may be more palatable to the community, and then we have other options, like piping to Rotorua certainly fixes Lake Rotoma what a great idea, but in terms of getting yourself embroiled in other problems maybe it is a really stupid idea. So it's finding your knowledge about the context that starts to impact on how you see these things, so if we will take that score and option 1 has got it and recommend it, I don't believe that we would be giving good advice.) (AL – Well you can't because it is within the realms of error). (AB - My suggestion is that you have four options and we should be really critical about the pros and cons of those options so they understand what their options are.) (JB – One option underpinned by where options sit, if deliberations come through) (KM – So in terms of this analysis Jim it is not conclusive ah, by the definition of Omori, by definition of the model if it is less than 0.3 different then it's not significant.) (JB – In that case you could say that Option 2 has not come out as well as Option 1 but it is not far behind, but after that, Option 8 is getting in the realm of significantly less.) (KM – I see it quite differently between Options 2 & 8 there is nothing in it, Option 1 is marginally better but with all the issues that they are going to take into account you can't bank on that, because Option 1 looks like an easy option, but if you start looking at those cultural things I am pretty sure that it is going to be difficult.) (JB – Our recommendation and acknowledgement of that has to be very clear). (KM – Why didn't RDC come up with Option 1 in the first place?) (AL – There was a reason) (AB – If you go to the steering group with those options now and talk about the pros and cons, and the steering group and the community make a decision as to where they want to go, if they have reasonable consensus doesn't that simplify a whole lot of stuff in terms of getting through the Resource Consent application process we are getting an option? So if we just selected a technically feasible option they still have a whole lot of stuff that they need to think about.) (JB – Yes that's right, ours has to be put in the context of that) (KM – You have to be careful though that you don't eliminate that one, because if you through that one out and the cultural is being leant on hard, those two have gone and you are left with Hobson's choice so I wouldn't eliminate 2.7 either.) (CM – Also the difference is less with the other lake between options 2 & 3.) (AB – Kepa you are still saying that we still have 4 options).(AL – Why don't we give all the ratings 3.2, 2.8 & 2.8 to the steering group and say that this is how they were rated? They can see very clearly where the differences lie and suggest that .3 is the difference). (AB – I reckon what we want to do is to have 3 or 4 options and we want to be really clear on what the positives and negatives, why we like or don't like an option, clearly on each of the options. If we were to ditch to 3 options my suggestion would be to get rid of the single waste water treatment plant, because for Rotoma we didn't really access that anyway, because it didn't have any impact on Rotoma itself and then we come into a whole lot of other problems taking it to whichever catchment we are going to put it and I think that we are probably just confusing people with that option of a single treatment) (KM – So Andy are you saying 1, 3. & 8) (AB – Yes) (CM – Can we justify ditching an option that didn't come out as underperforming in the MCA, it seems a bit of a stretch?) (GM – I think for 2 & 3 it is availability of land and at the same time address the cultural issues. For option 1 although it scored very high you have the cultural issues, so the key issue would be transfer of power from one catchment to another catchment. Potentially discharging water to the, Waahi tapu sites, and Rule 11, so if we say that the high scoring option is option 1 subject to these considerations and then we could lump 2 & 3 together maybe with same issues, (subject to land availability and control issues). (KM- Maybe you could describe them as very similar and the trade-off is one is cheaper but not culturally as acceptable, so you pay more to get the cultural compliance that has been identified there.). (AB – What do you think of the land availability for Rotoma for a starter?). (KM –If you are happy taking it to availability of catchment – no problem, otherwise you can go up the valley to the East End of Rotoma and I think that there would be room there, the land owners are the same corporation that owns half of the houses, so it is unlikely that they would cut off their own solution) (AB – So then if you were to go to Rotoiti the disposal area would be up behind Emery's store, is that likely given the constraint maps?). (GM – Option 8 – Land availability as well for the 9 clusters, (KM - I am pretty confident, the ones like Ruato where we are having the trial, I think that the land is available there) (GM – Can we have that piece of paper?) (KM – Of course, Hauparu Bay has room up the valley, Curtis Road has tons of room there. So they are the little ones, then you come down to 2 big ones and then Doctors Point and in addition the transfer of Rule 11 would have to fix something up to put it into the Rotoiti catchment, we could then reticulate it there without running for miles.) (GM – Then you would have to confirm costs as we haven't confirmed them yet?) (AB – So what you are assuming then is that if we have a combined system between the two lakes.)

(Andy Bell – I have to be honest here, we never had any experience of LPG units before and that was a change in mindset for us and it has been a good exercise so far.) (GM – Yes Andy but that would be dependent on technology evaluation). (CM – Does that option fall over if RDC don't want to own the Biolytixs, or does it just change the option slightly, presumably the home owners could still own them?) (Andy Bell – Sure the home owners could own the Biolytixs but the problem is whether they would qualify for the subsidies) (KM – If it is going to make a difference to the nutrients why wouldn't they?) (AB – I don't know Kepa, the Regional Council's subsidies rely on it being a community scheme) (Andy Bell – Once again we need flexibility here, if the good of the whole community and the lake water quality programme is that there has to be give and take in quite a few cases to make sure that it happens). (AB – I think if we have got more costings and the nutrient gains from doing this, then we could make an approach to MfE and to the Regional Council and say so how do these stack up then? So we have to be much more specific and say this is what they look like and this is what they will achieve.)

(JB – We can talk about the timing in a moment, but don't forget that there is a decision being made from the Committee on the 18th. So can I just summarise team, that we have pulled this together in an order of 1,2, 3 & 8 and these are key considerations that we will take forward to the committee in our resolution that we have half an hour to form however, we have to put it in context with the overarching recommendations statement wording that sits over this is something along the line of: "On lakes water quality, proven technology and operation considerations, economic grounds and risk assessment of preferred option the TAGs order of preference is how we frame that to give some direction as to how 1,2,3 & 8 fit as we can't just say here are the things that we have to look at" We have to put them in the context of how we got to this point from a TAG point of view.) (GM – Would you break that down to Rotoma and Rotoiti?) (AB – I don't think that you would put order of preference though, as there is no significant difference on the scoring system.) (JB – This is a tool Andy, how do we feel, we have had a guide from the tool that there is some significance in the differences, I think that so long as we have the proviso and elaborate that a little more on the cultural and social importance, and acknowledge that there may be areas that need a bit of a different combination, but if we don't give some more guidance and say here are four, I really think that we have failed.) (AB – But I thought that we were giving more guidance by saying here are the pros and cons and what we want is the Steering Committee to say how important is Waahi tapu or transfer to the catchment.) (JB – Yes they are going to do that, we have come at it from the point of view of lakes water quality, technical, economical and Public Health.) (Andy Bell – The strength of what you have done in my view is that you have got 4 options, technically similar in your assessment of them, there is little significant difference in you scores, but not a lot, so they are all similar from a technical point of view, there are three that are the tried and tested reticulation plant, you are almost looking at what Glen Snelgrove came up with at the meeting out at Rotoma the other day, which is where do you put these, do you put them in buckets 1,2, 3,4,5,6 & 7 and the response that he got was in accordance with that. From a strategic point of view I actually think that in some ways if you can't have and "out and out" winner that's the way to go, it is good to have a choice, because those choices will be made by the community on cultural and social matters then. So if you wise people here can't make up your minds clearly between a point of one being superior to the rest then if there is a choice between the 2 & 3, being cultural and social then, and 5A is the highlighted version of the alternate options that you have picked on as being the way to go which with an alternative option which is not so far removed technically from the others, then it is a community decision culturally and socially. No Ian's probably not going to like that I am picking, because he would probably like and "out and out" choice for the committee to agree and away we go. But we know that we have a lot of ground to make up and homework to do on the cultural and social issues yet, and this gives us a way to do that. I think what you have to clearly do between you is to give Ian and the committee a view as to what the positives and negatives for each of those options are, which I appreciate is what you are trying to do now and I think that it is really important that you give that a lot of thought and not gloss over that because it gives the difference between the options, and the direction to the committee as to which way they need to think of it, that becomes really important to me now. We want a subsidy for this right, so whatever you do, **have some kind of reticulation system or scheme in the title of it**).

(AB – Rotorua District Councils community reticulated joint community Rotoma, Rotoiti (CM) nutrient reduction) (KM – It is good to put the four forward because potentially the solution is Rotoma option 3, and Rotoiti option 5A, that may well be the best outcome.) (JB – Well depending on the costing of option 5A and if you do 2 for Rotoma you have lost the opportunity of jointly coming back to Rotorua on 1.) (KM – No sorry, I just said that 3 & 5A, Rotoma is the easiest one to do with one hit, and you could actually include Rotoehu, with the small pockets leading into it and bang you have solved that, because I don't think that you would be able to justify an NBR and some clusters in Rotoiti, (you might be able to), so maybe it is option 3 & 8, but I think that you need something that is going to take care of those clusters that you can't expect to include, like Doctors Point want be included, but they require a pipe under the lake or crossing Riparian going the other way, that would probably be cheapest just to do that.) (GM – Do we agree with that?)

(JB – We it seems to me that if we went for 1, 2, or 3 and there was some small localised areas that for cultural or economic reason along pipeline, Doctors Point didn't stack up in a customised solution would be appropriated for that and I have been thinking of something along that line, but I don't know how that now fits because that may be 5A.) (KM – But see 5A, if you had to have an iso-community like Doctors Point, that you can't even drive to 5A has to be the perfect solution because you can do it and there is no maintenance.) (JB – Kepa, I was thinking along the lines when we thought that we might have one scheme, if for any of the above reasons the TAG's solution is not suitable for a small localised area then a customised solution appropriate for that location should be used, 5A could fit into that if you are going down one of the others. – So team how do we bring this together bearing in mind that I will be very embarrassed if I have to tell our Chairman that he needs to sit outside.) (AL –We have got this list quite highly even though it is going to cost $19,000 for a Rotoma resident, so we have to keep in mind that this is technical as soon as they look at the cost that is probably going to be ditched anyway.) (KM – No, no I would put it this way, you know how Ian needs a decision by the 30th September (JB – No he wants our decision today) (KM - No, the decision for the MOH subsidy by 30th September, then if it is a positon of a combination of 3 & 4 there is room to move more towards 5A, or more and more towards 3 isn't there?) (Andy Bell – I would agree with you there, because if there is going to be a split scheme here with some parts of the community wanting one thing and some parts of the community want another and I don't know that we are going to get them all on the same page. If it is going to work that way then some flexibility is really nice and if we have 3 or 4 options which ever you decide between 2 & 3 giving us the flexibility to shift one way or the other, depending on what the community actually want to do, because at the end of the day we want to build something that the community want and want to pay for and that everyone here says is going to deliver the goods, so what they have and what mix they have provided, that it is funded and paid for I really don't care. If some in the community want to go to reticulation and some to 5A we can make that work in the groups or clusters, the only question I raise is about 2 & 3 and whether one of those is still suitable) (CM –Do you not use the economy of scale with the more properties that drop out and go to their own small clusters, does that not make option 5A more competitive?) (Andy Bell – That is a very good question and is something that has to be worked out fairly quickly, as I got asked the question two or three times yesterday, what about the economies of scale for all of the options if people opt out what happens to the rest?) (KM – Option 5A in there is an economy of scale in terms of nitrate treatments, like the fewer treatments that we have got going on there like others, the better.) (Andy Bell – The smaller the less problem, is that what you are saying?) (KM – What I am saying Andy is, if you had option 5A at Rotoiti and you had the ability to do 2/3rds of the houses then one denitrification as opposed to 2, there must be some economy of scale in that.) (Andy Bell – Yes).

JB – I can I just go back to the TAG from the following perspectives we still have those for our resolution and are we giving the order or are we saying that these four and these are the things that we have to look at? I didn't get resolution on that. I will lead that we have four and that we are going ahead with those four but from our assessment based on those quality proven economic grounds and risks here are the four that go forward for the cultural, social and other impact. The order at which they came out of our technical evaluation is: (I sense that there may be some resistance to at least give that order, but I would like you to give that order). (AB – I am not sure how we can give that order when you tell us that 0.3 is kind of like the error in that order.) (JB – We are around the region of 0.3) (CM – Could you make it clear that in the technical evaluation the options came out very close, this is the order but never the less it was very close?) (AB – But the order that you are putting them in is not the order that they came out in 1, 8, 2, 3). (CM It was different for the two lakes.) (KM – 1,8,.2,3 (Rotoma) or 1,2,8,3, (Rotoiti), we could even say OK 5A came 2nd for Rotoiti, so with Rotoiti being 2/3rds of the population so we could suggest that 5A is slightly ahead of 2 on that basis). (AL – Rotoiti was 1.2.8.3 and Rotoma) (KM – Given that 5A should actually be the one that addresses the cultural issues, and scoring 2nd on the analysis and I don't know why, but in terms of Rotoiti it is almost the common sense one). (AB – Yes that is what you have been saying, and I understand that because of the lack of availability of land in certain areas, and cultural restraints, and that's why I reckon that it is not sensible to rank them because I think that you will just confuse people.) (DH – I think that you can say that these are in ranked order but with variations). (KM - I think that when we did our first loading attempt there wasn't much between an alternative and that option 3 came up the best). (JB – Bearing in mind that we have come quite a way today with what was on the table with whatever we call it – Biolytixs of land treatment. How do we report this back in 10 minutes?) (DH – I think the other thing we need to be mindful of is that this was purely a technical exercise and that we as a TAG had strong constraints put on the options because we needed to disregard both cultural and social) (KM – And we had to leave out statutory as a result.).(AL – So it didn't include cultural, social or statutory as a consequence).

JB – We will report, have Kepa's position, the 1st cut and assessment. So we give the order of preference that has come out of it, we make it clear that our technical appraisal was given by lakes water quality proven economical and

technical and we acknowledge that the cultural and social is somehow a very important component of the final decision being handled through the committee and we did not pacifically address that as per technical and as a consequence of not addressing the social and cultural we did not do the statutory, but here is our assessment of planning instruments and Kepa's assessment of the cultural planning instruments to refine that down and then we form up the 1,2,3,4 – maybe these are tabulised as simple as possible, but what are cultural and what are social or do we just leave in the listing like that? (DH – What are the definitions of cultural and social, what are the goals and criteria?) (CM – Could you write a document on the 4 options with one sentence on each of the Steering Committee goals, would that be a good way to summarise it?) (JB - The thought of our Chairman is that we might revisit the 4 options on an option sheet up tot 8 to 10 pages, if we are over that then we have too much, we can have an appendix report on our outputs.) (KM – Can I just suggest that we take 5 minutes to run through the indicators that I have revised for the MauriOmeter analysis and that way at least I know that I have got indicators that everyone is happy with? I will do a mock assessment of distributors, feedback, and then at least you can put something back to the Committee to use, because they can then do their own assessment, I have done the preparation and I would like to see it being used.) (JB – I would be fine with that and if Ian comes while we are doing that, that's great.)

Welcome Ian, I was warning them all that you were about to come through the door, we have had a pretty intense one, we are not quite there but we have got the bones (an outcome), but we would just like to finish with Kepa's raincheck. I think from his point of view that we have worked very hard with the NCA, Kepa has put some work into bringing forward a revised MauriOmeter from the TAG perspective, so if we could just do that for a few minutes Kepa and then I am going to hand over to David to take my role and inform us and crystallise where we have got to in terms of firming up our resolution.

KM - There are 4 dimensions, the first one is environmental, and I have got lake water quality in terms of nitrate N removal, lake water quality in terms of P removal, soil resilience in terms of disposals long term effects on N &P (separately because they have different catchments), and then I have got ground water as OSET goes straight in the ground being pretty much on the edge of the lake, air quality discharge to air, creation of waste to landfill by a solid UF & PK system and the last one is consumption of fuel and energy, so from an environmental prospective it is considered holistic if some of those aren't considered relevant we can kick them out, if there are any that I have missed out you might want to put them in, it is just a technical way of measuring. (JB – So what you have done as per your model Kepa is different from the Committee's goals, you have put the whole environment into the environmental basket.) (KM – Yes because that is how the model works, so those will be scored but we will actually score them on options 1,2,3 & 8 & maybe OSET also, and then we come down, you have got some cultural ones which I have identified as ones that will be important, desecration of Waahi tapu, the transfer of Para, discharge to lakes which are the 3 that I mentioned, cultural, harvest of food, the tree principle if there is any land exchange, capacity to use sites for tori like blessings and the resources that are extracted and there suitability, they are all the ones that I could see being relevant, some of them are out, some of them are in, that would be up to the Committee.) (JB – So just to be clear from a TAG point of view, you would package that as Kepa Morgan's assessment based on the model and the TAG has been mindful of that but it is assessment and is outside of what we have done today.) (KM – Exactly, so that's the 2nd bunch, the 3rd bunch are the social ones for the community. The eight that I have got there, with water quality suitable for drinking which is very important for Rotoma, the lake water quality is safe for accidental emergency consumption, like when you fall off water skiing and forget to close your mouth, and suitable for safe swimming and contact recreation like paddling, food gathering, air quality free from odour, financial indicators possibly meet by the community facilities, the affordability in terms of costs contributed by low income residents and acceptability, compared to preference which has been indicated at meetings). Lastly expenses overall, as the subsidies are measured later, Financial Costs, Capex costs, the Economic Impact on Operating Costs. The 3rd one is Rule 11, we don't really know what the numbers are around that yet but that would be useful. Subsidy eligibility so they can score on that, Economic Impact over Resource Consent durations and implications, the future liability for the scheme upgrade, load requirements for disposal and availability of suitable land and the Environmental Court costs if they were applicable if that was perceived as a problem. Remembering that there is no actual preference for any of those 8 over another, so including all the issues and no weightings. (AL – Kepa does the future liability for upgrades and replacement, also include future opportunities?) (KM – Yes it should, do you mean to build or extract nutrients for other uses?) (AL – Yes, for other uses in something else.) (KM – We need to get some comment on that but if there was an option that proposed an opportunity in the future you would want to factor that in, you just do a time series analysis because it is a 40 year contract for a 40 year solution, so we would add a decision once it was implemented and at the end of 40 years so you get an area and that would give you an overall impact over the whole time as opposed to a discounted area on a cost base analysis.

(AL – So what do you want to do with this?)

Action: -KM – We were going to run through it but we haven't got time so what I suggest is that I could add or subtract those things that we were not happy with and I do a "mock up", and send it out to everyone.

(JB – Take a look of where we have been on the output and that then could become our further information source as summarised in our brief report and appendixed like we are doing with the planning instruments) (KM – With a proviso that we have not had a chance to discuss it) (JB – And the context that the TAG did this assessment on water quality, economic, technical grounds and before you leave the country Kepa.) (KM – Yes, definitely) (JB – Thank you for that Kepa).

JB – Welcome Mr Chairman, where we are is a bit worn out, we started the day and I did copy you in with a quick email covering the 8 initial points that we needed to consider and get out of the road including our very hard working secretaries in terms of the minutes, we then went and confirmed that Alison's re-run of the nutrient levels from the 7 options we had on the table were fine and there is a slight variation of about 5% in one of them but the consultation documentation stands as it is, we then had Andy update us on emails from the MOE and the Regional Council on the (almost definite, as we are seeing it), subsidy cut off levels for the environment and region, we then quickly visited the risk assessment from Riaan's work and how that could be taken forward, then the planning assessment in the fact that we checked the iwi management plans and action plans, then we went back to around the table of our 1 to 1 and asked for our collective wants for day, and Alison particularly mentioned that we needed to keep in mind the very big picture of sustainability of where we are, and then Alison said that she had a new option, so that was a pretty sobering starting point for the day. Now David will give us the output of today but of course it needs a bit of word smithing on of we are, but I think that we had better put the new option on the table first.

DH – The TAG was obviously asked to provide its best option from a Technical and Economic view point, and I think that the voice of the TAG said that in doing so it explicitly recognised or ignored the cultural and social issues and as a consequence did not consider the statutory issues relating to, for example the consenting process. That is something that we have taken out of the equation and so when we came to ranking these different options there were essentially three components that were taken out of 8 different components that where evaluated from economics, environmental, and community view-points. You can see on the whiteboard the order of preference of the groups, so Rotoiti ranked 1 ,2,8, & 3 and Rotoma ranked 1,8, (2 &3 were identical), one of the points that we need to make is that these were very close to the limits of error between the different options, so there was relatively very little separating these different options. #1 is piping to Rotorua, #2 single local treatment, #3 two treatment plants, #5A in some sense a modification of #5 but with the combined grey and black water case and that would go into a Biolytixs unit on an individual property with the ownership of which we debated a little bit here, so one of the issues is around who would own the Biolytixs unit, would it be RDC or the individual property owner? From there it would go into a centralised collection or reticulation system, and then into a denitrification bed, and then to a land based application presumably some sort of cut and carry or something similar. There may be some modifications and tinkering around some of the design aspects of that pre-aeration before the denitrification or Alum treatment or something like that, that can be tweaked either at the time or subsequently depending on the way the system is operating. So for that reason, that certainly appeared among the 4 favourable options. It was considered that that option might be suitable for the MOH subsidy because it is a contained system and not separating black and grey water and then we come to the caveats that come with the different options that we were essentially not able to consider as part of this TAG, one was piping to Rotorua – and that's around transfer of Para, potential discharge to water – I say potential, depending on future Resource Consents and so on, transfer of waste water over Waahi Tapu sites and Rule 11 taking it into the Rotorua Catchment. Single land treatment, some of the caveats around land availability that was probably cheaper than having two individual treatment plants, one for each of the lakes, transfer of Para again between catchments for single treatment plant, and potentially Rule 11 depending on where you are taking the waste water. #3 – two plants, much the same really, land availability that's potentially going to be a more expensive operation than a single treatment plant, there may be some bonus's compared with a single treatment plant which would be around fewer Waahi tapu constraints, potentially no Rule 11 issues and it could be that you may choose one, with flexibility to choose different options between Rotorua and Rotoma. The last one, the constraints would be land availability, has not been costed yet so we don't know the costings particularly around the reticulation and denitrification and land for that. I guess Greg expressed some concern around the slightly less conventional engineered process, you have got the usual issues of land capacity for when the nitrogen and phosphorous that are applied. Again it might provide a greater flexibility of options between Rotoiti and Rotoma. I might have missed one or two there.

(JB – And greater flexibility for any pacific difficult area or outlying area like Doctors Point). (DH – So that was the essence of it, so just to recap, this committee thought that it had done everything it could do to narrow down the options but wasn't confident to be able to put up one overriding single case, simply because of the social and cultural considerations that were not made under the present questions that were asked of the TAG committee. (JB – But in that respect the way that the TAG went into the water quality proven, economic and technical we have come through with an order of preference from those points which in both cases goes back to Rotorua as first but then the order alters between the two catchments, but all are pretty similar.) (AL – I will write down the sub scores so that you have an idea), (IM – What are those scores that you are writing down, as I am scared that it could be option 9). (DH – Just regard them as relative as they are based on 5 or 6 options of the MCA). (JB – Yes Ian, the MCA without the tangata whenua statutory MOH subsidy which went into economic and social, so as David said we had that dilemma once we got to statutory, how do you mark all the things other than the Maori cultural tangata whenua, 9 of the major policies in the various planning documents, so that caveat goes on that.) (AL – Options, OSET and 6 & 7 were ranking around 1 to 1.2). (JB – What's come out of the option 4 that we didn't go any further with, the septic tanks, urine separation, 5 & 6 has been developed at the new 5A to perform much better with the nutrient and to get the grey water off the property, but to introduce a Biolytixs to every house) (KM – The idea being to address the concerns MOH & MfE) (JB - And try and get down to an OSET level at least from a nutrient point of view.) (AL And our concerns about the field sites around these hills.) (JB – So Mr Chairman we haven't got an absolute clear technical one, we have four with and order of preference from a technical viewpoint but reasonably close and we have identified the key considerations that need to come out of the consultations socially and culturally including that we have got to do a bit more work and only an area of 1, 2, & 3 is Rule 11 which we had a wee play with the other day. The new option 5A has a whole bunch of "not well defined" items to it in terms of cost and technology evaluation particularly from Greg's prospective, so Ian, how you are going to handle that without any further support we can give, I am not sure.) (IM – We are reaching a point where the TAG has finished its work, the absolute cut-off date for us is the 18th August, because these guys have then got to process it and put it through their machine and get their formal approval, which normally takes them about the same time as it takes your organisation and to try and get it in 5 weeks is a huge ask. No more time Andy, no time to keep coming back, unless you have got some great way to do it) (Andy Bell – There is still a few weeks for us to reiterate a few things, but there may not be much time for a formal meetings, but if anything has to come back for some kind of review we will have to do it the best way we possibly can, because at the end of the day we have to get this through one way or the other). (DH – One thing though, there are good working models of the denitrification beds, (Kinloch, Taupo treatment is a good example which is highly effective, doing about 300 cubic metres a day) **(GM – If you have the contacts for these people, we will go and visit them, we want to know of any operational issues.)** (DH – You will find the operation remarkable simple.) (KM – As is the Biolytixs, but that is probably the really attractive thing because it is so easy.) (AB – Thus giving a great increase in demand on pumpkins). (JB – To be quite frank the dilemma we have with this 5A now Ian, we can mark it against nutrient, (when might you have a cost out of PDP Greg, did you pick that up in your phone call at lunchtime?) (**GM – No – I will talk to Rob as soon as we finish this meeting**) (JB – Because our problem here Ian, is that it has not been out in the consultation arena but it has elements that have been out in the consultation arena, but not in its own right, Biolytixs has, Urine separation has but we don't have that so that it not included, and cluster has so it really is not too far from what has been out in various parts in the consultation arena and the fact that the carbon beds are a treatment component at the land cluster disposal area, really is not a major component for consultation. That would be the comfort level I guess to some degree that it is a refinement, and advancement to do better from a nutrient and public health point of view, than that basket of 4, 5 & 6 accept that comment and maybe to get over the subsidy line we don't know. But whether it gets over the RDC line, and I say this independently of course, with 740 Biolytixs being part of a scheme or not is a key question for RDC.) (IM – If it is an individual property it is not and it is not part of an RDC scheme, OSET applies.) (KM – There is two sides to that to, as some people have already got OSET systems in, with option 5A, they have a choice of whether they disconnect the outflow of their OSET compliance system to our reticulation or if they provide it with a replacement, the choice for them is either paying for the Biolytixs and having Council look after them, or keeping their own stand alone and paying for the maintenance themselves) (Andy Bell - Option 5A is a reticulation pre-treatment scheme on site). (KM – But does allow people who have invested the expense not to lose it entirely.) (JB – Back to Ian's question with a pre-treatment, you mean Biolytixs on site or onsite effluent, if that was on site, private ownership, is subsidy available in terms of the community scheme?) (Andy Bell – From the information to date it probably want be). (IM – There is relatively few, so that's a small part of the picture.) (KM – And if they stood too far away Ian, they would have to get an OSET). (IM –Yes) (Andy Bell – That is why I suggest that the title is important) (AL – The Regional Council subsidy is a lump sum for the scheme not per household though isn't it?) (JB – Yes, as is MfE) (KM – So someone has to make a decision what the rule is if someone has a system there) (Andy Bell – Personally, option 5A which only came to light this morning, we have agreed to dismiss option 4.5. & 6, it is a simple aversion, and in actual fact it is a reticulation

system and whatever you term the onsite Biolytixs, OSET or whatever it is going to be, it is a community system, and whether Biolytixs are privately owned or owned by Council is something we have yet to determine. I suggest that if the scheme is going to sink or swim on that issue, then it would be owned by Council, that certainly would be my advice, we don't want to lose the scheme on something as silly as that. Having said that, I think that we get everyone's acknowledgement, Kepa knows more about the Biolytixs obviously, because he has got one, but the rest of us don't it is new to us) (AL – We have got one out here at WWTP if you want to have a look at it) **(Andy Bell – Good idea, we will go and have a look, and someone needs to check out Kinloch also to gather further information on Biolytixs.)** (GM – One of the key areas is procurement, if we are going this way this is a specific trademark, we would want to know if there are other plants out there so that we could tell public tender based on an open specification because we are going to go for Biolytixs. I am not sure, I will check with our procurement people if we can go that way) (KM – It is a bit of a miss match but you could invite another 2 OSET compliance systems) (AL – There are other ones that perform the same but with electricity differences) (GM – That will be the basis of the whole operation because we ended up with 4 or 5 tenders and it was cost operation) (IM – The other question is cluster reduction) (AL – Better than onsite because it isn't going to the leaky discharge fields, but similar to the Biolytixs unit, but then we are going through the land treatment systems so we can control that and there is opportunity to convert that dissolved phosphorus and remove it as well.) (JB – So Alison, can we show Ian where would the phosphorus sit on the bar chart and the question of potentially bringing back those environmental subsidies?) (AL In terms of nitrogen removal the Biolytixs component of it would remove a little bit more than this, however, we have got a carbon bed that follows and that would remove half of what is discharged to land, slightly higher still than an OSET but we do then have the discharge field that would perform must better than OSET, so overall you are likely to have more nitrogen reduction. Again, there is the option of adding a little bit of aeration to convert it and we get down to the local set, so comparable. Phosphorus same as OSET at this first step when you go through the Biolytixs unit but then you have significantly more removal in the discharge field.) (AB - How did we get the same as OSET Alison?) (AL – OSET compliance systems aren't required to remove any more phosphorus.) (IM – Technically how phosphorus looks with option 5 you have Biolytixs on its own, so you start with that, (AL – Oh except that it looks like option 7 in terms of phosphorus removal, does that make sense? And you have the opportunity to treat it) (IM – Last question on Costs.) (AL – Looks comparable to option 1, assuming subsidies and we don't see any reason why they should not comply, but that needs to be confirmed.) (RR – I would just like to add, with Biolytixs do we start off every time that the options of more than one property goes to a single Biolytixs? – (AL – No because the volume is such, that you would need one for each place.) (AB – You have loading criteria) (IM – So the message to the TAG is that it looks to be the same sort of costs as option 1, but with somewhat greater uncertainty) (KM – But probably lower operating costs) (AL – I would imagine that it wouldn't take PDP long to actually confirm those costs because they have all the components there other than cbeck which would be easy enough to get.). (IM – So what do I tell the Steering Committee in about 2 sentences please.)

DH – We have come up with 4 options that vary slightly in their ability to have the primary effect on reduced nutrient inputs to the lakes. These options have been evaluated purely on technical and economic grounds and that the rankings are based on a scoring system that they are pretty much within the range of error of 1-4 in terms of that ranking.

Andy Bell – If you want my view Ian, I think that it gives them a pretty good choice, these guys have done a lot of work and soul searching as well and some not so easy questions to answer and they have come up with technically 4 options that are very similar in order of preference, but they were quite close, three of them are traditional and one is alternative and I think that gives the community a really good measure of confidence in the technical ability of the four options versus their choice in cultural and social. Without an option here from this group on cultural and social grounds, as it is we have a range of options that have got a bit of everything to offer to the community, all very closely aligned.

IM - The question that I will get from some because it has already been raised is what does the TAG think that we should do? (JB – The answer is any of them, but the order of preference on our technical grounds, technical being defined as first and foremost, lakes water quality, community environmental, economic and technical.) (DH – I think that we have to be quite clear that we could have gone further down the track recommending a single option if we had been given a greater leeway to be able to consider the social and cultural or to have brought in additional expertise to have done that. (AL – So any of those four are more or less equal and it depends on social and cultural considerations.) (JB – Except for an unproven #5A) (IM – What my hunch is, listening to the people is that they will be quite significantly influenced by what the cost comes up with, because based on the previous figures these costs

ranged from ($10,000 - $13,000 for Rotoiti in terms of capital), and looking at it in terms of annual costs range from (for 1-3 is $300/year which is quite a bit for some folk) (AL – I think TAG is also saying that if option 6 & 7 come out cheapest we would support them.) (JB – In effect this has taken 4, 5 & 6 out of the equation from a TAG point of view, hasn't it?) (KM – 5A being the new option) (AB – I am not sure why that is such a big problem for the Steering Committee or the community though because if we say technically these four are equal subject to confirmation, then they can make their preferences, I think that that is helpful.) (DH -They would have to be revised for Option #5A). (JB – What is important Ian, while this is a MCA and a tool (we stress it is a tool), those criteria and these goals are your Committees goals (right), and we distilled what we thought was the key thrust of them, from a lakes water quality point of view we gave it an 18 – our technical was our 2nd highest weighting but the key weighting was lakes and environmental, so the weighting gives these overall though if you are looking at any given criteria and someone asks which is the better criteria from a lakes nutrient point of view, yet from a technical these are a composite and the scoring was only done by the core TAG. (AL - 2 4 4 3 5, yes so the scoring varied amongst the TAG for that one.) (IM – Well it is my chance to hear what your conclusions are) (JB –which will be written for you for tomorrow) (IM – Allowing the committee a fair chance to consider your report, they will have the social and cultural and for some that will be determinate, for others it will be cost and for others it will be lakes and some certainty, well that's my hunch, but we do need to put it very simply to them. My feeling is the MCA is a black box, if we simply try to get it inside it and explain how it works, we have to present your view as this is what the TAG considers and the reasons for it, without necessarily looking at it in detail of the tools that were used. What do you reckon Andy?) (Andy Bell – I agree, and I come back to the words that the TAG put on their preference choices because I think that they are going to be really important. When someone turns round and says I vote for option 1, they may well have made that choice based on cost, nutrients or the best way to go, if they actually do understand, that has implications and complications as well. They may well decide that perhaps that wasn't the best choice, overall bearing in mind all of the issues that I have to think about then, actually I make my issues to be something else. I think that there is no stand out preference and it is going to be a social and cultural choice by the community, I think this TAG groups advice on what the issues are and what they had to consider when making these choices are going to be really important. (DH – The only part where the MCA wasn't a black box was around the costings where effectively we had quantitative values to work with and so you can potentially put up the cost directly to the community on those and they would equate to what the TAG effectively covered.)

Attachment # 5 & 6 MCA Outcomes & MCA Recommendations

(JB – As interim Chair can I ask that we have no minority views that need recorded in terms of that condition in our TAG theme)

(IM – Well thank you very much team that is absolutely brilliant.)

(Andy Bell – I would like to give my thanks also, one step at a time and we move forward, and this is one of those major steps forward, so thankyou.)

JB – So can I try and wrap up; where we go from here as a TAG, firstly we have to urgently put together our recommendation in a very readable, concise form and I think Alison, and Helen from her notes, if we can aim to get the first cut done in the next 24 hours and back to TAG so that we could get that back to Ian within two days, the summary of the first cut out tomorrow, with the opening and the preference in by Wednesday Ian, for the close of play

(IM – That would be good) (JB - followed by a fairly brief report that I will pull together with some headings and have first cut in summary format like for example, the matter of the statutory and the feedback key parts out of that. David, we haven't agreed on that email I sent this morning of Andy's statement if we could sign off on that before we close Alison, the report to both the committee and particularly RDC and the money that has been spent and the audit trail on future consents, provided that they are needed to bring in an appendix report together, which is simply a number of the bindings, the water quality statements, the nutrients calculations and graphs, the two tables and those sort of things.

In terms of minutes, thank you again Helen and Hilda, we are not there yet, with regard to the RRSSC #5 Meeting, Helen did the morning minutes and Hilda did the afternoon's, and in terms of today's minutes, I would like to look them over first this time and am happy to fill in any gaps or Greg, and that would be a remote feedback because we need them all in one place and there is a sizable amount of minutes. Kepa you are going to write a summary paragraph for the report before you leave on Friday. (KM – Definitely), (JB - If we just go to the statement that we didn't sign off on

last week that came through your committee Ian but is really from us to the water quality TAG in terms of the bigger picture of the whole nutrient question.

(JB - So, David if you could just drive us through it, I spotted something that I would like to mention.) (DH – We just need to remove the 2nd "target" in nutrient reduction targets in the 2nd last line as it is in twice). RRSS TAG in the first sentence). So read to us someone please: (KM):

Statement from Rotoiti Rotomā Sewage Technical Advisory Group, 29 July 2014:

The RRSS TAG is evaluating wastewater treatment options to reduce nutrient loads to Lakes Rotoiti and Rotomā. Although restrictions on nutrient losses from land use apply to Lake Rotoiti through Rule 11 of the Regional Water and Land Plan, there are no rules restricting land use at Lake Rotomā. Given the $14-20 M investment in protecting water quality of Lake Rotomā through implementation of the advanced wastewater treatment, it is critical that land use planning rules are in place to ensure land use is consistent with maintaining or reducing diffuse-source nutrient loads to the lake. The benefits of nutrient reductions from advanced treatment of wastewater may otherwise be at risk due to uncontrolled and inappropriate land use activities. The treatment is estimated to reduce phosphorus loads to Lake Rotomā by about 140 kg per year, which will be a major component of the nutrient reduction required to meet the Regional Water and Land Plan targets for the Trophic Level Index (TLI), so that lake water quality is maintained or improved.

Attachment #7 – Reiterated due to it's importance

JB –I have one fundamental question apart from the word wastewater which is probably right after all: What is this one based on, is it based on options 1, 2 or 3?

AB – That's a good question - that really comes out of the document that Chris wrote and I don't think that it is quite that big.

JB - If option 5A does not do this we could get ourselves hung out to dry.

DH – It should say the required reduction in phosphorus load is about is about 140kg.

CM – 140 is the total contribution from the septic tanks presently. To say 140 would assume 100% removal. The grey area is how effective the land post disposal treatment is. Is the land retaining 100% of the P or is some making its way to the lake?

AB – Option 1 gets you that. – Option 2, 3 & 8 want necessarily get you that – (CM - Correct, but they might get you close)

JB – Option 5A want, unless you are relying on the soil with no brake through over time, so I think that that is dangerous.

CM - Option 5A, if you are flocking with Alum it may be as or more effective than options 2 or 3).

AL – 24 years out here has prevented the phosphorus from moving to the lake.

DH – Wouldn't we be safer to say the treatment is required to reduce the current phosphorus load to 140kgs?

CM – The target is 140 with bounds either side of 70 – 200 is a broad acknowledgement with some degree of uncertainty in the analysis.

DH – The treatment is required to reduce the current septic tank Phosphorus loads to Lake Rotoma 140 kgs/year in order to meet the regional layout.

KM – I don't think that the target is so much the issue, as the land use practices that bugger up all the good work done, isn't it?

AB – Yes that's exactly right. AL – Do we delete that or leave it as a proviso

DH – After Lake Rotoma we could say an effective treatment system could be a major component of nutrient reduction required.

JB - Are we happy with that? I think I am happy with the words waste water. Now this is only Rotoma estimate, where do we have the costs Riaan as a breakdown we only have the grand total? Can you look at the Riaan please?

(GM – We have a separating table). (AB –Are we still happy with $14 - $20M costings?)

IM – With regard to option 5A, we need to talk Andy about how we are going to notify the public that we are now asking for another option, and we need to work out how we handle it out there because we had 200 odd people attend the last meeting and showing real interest and we are now coming up with something different which RDC may well go for in the end, so we need to work through how we handle that.

Andy Bell- This is a variation on another option though. Cultural and Social issues need addressing but time is getting short and we need to talk about how we are going work that through.

RR - With regard to costs for Rotoma only option1, 2 & 3.

GM – Lowest to highest of all options.

RR - Option 1 - $10.4, Option 2 - 11.2 & 3 –$ 12.3 for Rotoma only.

CM – Why are the per hue costs so dramatically different then, if the costs there are so similar?

AB – They had other options in there and some of them are not subsidised.

AL – These are just 1 - 3 with 300 houses, and that's what it breaks down to.

CM – Don't the per hue costs range from something like 13-20? That's more than 50% difference, but we are looking at a 10-12M span difference of the options.

AL – They are all subsidised with a cap.

CM- So it is an absolute, and not a percentage?

GM – It was an absolute number.

Attachments # 8 - TAG Water Quality Nutrient Sources

Attachment # 9 – Iwi Management Plan

Attachment # 10 – Summary from RRSSC TAG

JB -Round table – lets have1 liners' please.

AL – Thank you for considering the late option that I put out there and not walking out

GM –Alison, Why didn't bring option 5A earlier in the peace? We still have a lot of work on, I will have to go back to PDP on costing for option 5A and hope to have an answer in two weeks' time if you can point me in the right direction and I go an talk to those in Kinloch regarding the technology evaluation on the profile of the treatment from Biolytixs to the carbon beds, and the carbon beds to the land treatment system.

AB – I think more importantly than option 5A, was that Alison suggested that we think about things from a different prospective, that was a valuable thing that you brought to the meeting this morning which ended up in us getting some solutions that we agreed on.

RR – Yes I think I probably take the same line as Greg, I think that it is big money and a big solution which we haven't had a chance to think about, so tonight we can sleep on it and tomorrow we can think about it again.

KM – I am quite happy today, I didn't think that I was going to be this morning, I am happy because we have actually got some options there for the Steering Committee that can cut it culturally, and my biggest concern was that we were going to end up in court again. That was a serious concern for me but I am a lot more confident now so thank you very much, especially to you Alison, great suggestion and the talent of a woman, who looks for the middle ground between the adversarial parties, so very, very, well done you deserve a lot of credit for that.

AL – Thank you Kepa.

CM – I wish to echo that we had a really good outcome today and I am pleased that we have narrowed down the options, but the options we are left with are all quite productive in terms of nutrients to the lake, potentially so, and I am really looking forward to the feed-back from the Steering Committee and I hope that TAG has an opportunity to play a role in the fine tuning if that is appropriate. Thanks.

DH – Thanks for an excellent meeting, I think that we have reached as good an outcome as is possible, we have thrown a new option into the fire (thanks Alison, and I mean that seriously, that was very valuable), Kia ora tatou for your participation.

JB – What do I say, I have been around 44 years in this game, but this one has been a bit different in terms of working through and having one's own professional opinion but having to take the middle ground and doing a lot of listening. Thank you for stepping to the MCA today Alison, I thought it appropriate that I step out of that one. We have with so many exercises that I have done to have so many multi disciplines around the table has been hugely valuable and with a Professor who knows as much about waste water treatment as most has been hugely appreciated, bearing in mind that he is an Otago rugby man as well, so it has been a journey and we have covered a lot of ground, we have gone round the houses a few times, with the amount of paper we have generated, somewhat for the many emails, I held back on one last night, and Andy blastered me for that. They were all important parts of an audit trail, that part has been quite difficult as with my computer skills, but we have had Kepa and Craig and getting our head around it. Alison today, thank you so much, this has possibly been one of the biggest challenges for the community waste water treatment disposal I have seen in New Zealand, and I say that with huge respect and pride for putting something on the table, it was interesting Craig referenced in his evidence to the Environment Court and his early presentation the MfE sustainable small community wastewater hand book and I spotted in that a working party and whose name was in it, and in it was urine separation which I couldn't remember that part in that hand book, so that was an interesting quirk for me. We are not there yet as we have some exchanges and words to agree to tomorrow when we get that through but thank you so far.

GM – From a project management point of view it looks like we have got a range of options and it looks like a single decision, or it may be a combined hybrid system, one for Rotoma and one for Rotoiti, and I think that we need to put that on the table for the Steering Committee. Would you agree with the suggestion that if this solution that comes out is not straight forward, if after considering all those, it doesn't come up with a very clear option, there could be complications, so, the best solution that comes out may be 1 system for Rotoma and one for Rotoiti?

KM – Andy actually suggested that earlier and he said that it would be preferable to be in that position when the advice was given to the MOH on what the preferred option was that it has that flexibility. (JB – So just to take that further round the table, we have always gone out for consultation or combination thereof, we have combination within this that we flagged particularly in 5A in any specific isolated area or whatever, so is the TAG happy that that door is kept open, it tends to confuse the option basket but in the way the social and cultural might come back, and if the subsidy does get more difficult from one end or another, that may be a way through? (JB -So general agreement is that it stays in the basket but that it is succinctly worded, are you happy with that Greg) (GM –Yes)

IM - We are very short of time with the process of external constraints we have to use the time as best as possible to get the best possible decision and I think that you guys have done great work. It would be great to have a couple of

weeks and get some cultural input and bring it to a conclusion, but that's a luxury that the real world denies us so I think that we can go back to the committee, but a thought as to the communication of the committee so that we lead them into thinking a little gently because they are quite clearly expecting the TAG to come and say this is what we think is the preferred option. There will have to be a little bit of work done just making sure that they get some advanced notice and getting that one page of what option 5A looks like will be quite important to them. So thank you very much for all your work and patience and I hope all goes well in your day jobs and your life as well.

KM – Just to reiterate it has been enjoyable and it has been great getting to this point so thank you all very much.

Kepa closed with a Karakia

11. ATTACHMENTS

1	Nutrient Removal Comparison of Short Listed Options	Nutrient removal comparisons.pdf
2	Risk Matrix	Risk Matrix.pdf
3	MCA Appendix B Assessment	MCA Appendix B of TAG report.pdf
4	MCA Supported Options from whiteboard	MCA Supported options from whitebo
5	MCA Outcomes	TAG's Outcomes.pdf
6	MCA - TAG Recommendations	TAG Recommendations.pd
7	Risk Assessment	9.8 Risk Assessment.pdf
8	CM's –TAG Water Quality Nutrient Sources	Water Quality TAG.pdf
9	Iwi Management Plan (AB)	Iwi Management Plans - AB.pdf
10	Statement from RRSSC TAG	Statement from RRSSC TAG.pdf