

# Report to the Collaborative Stakeholder Group – for Agreement and Approval

**File No:** 23 10 02  
**Date:** 22 June 2015  
**To:** Collaborative Stakeholder Group  
**From:** Chairperson – Bill Wasley  
**Subject:** **Policy options for sediment, microbes, nitrogen and phosphorus**  
**Section:** **Agreement and Approval**

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## **Disclaimer**

This report has been prepared by Waikato Regional Council policy advisors for the use of Collaborative Stakeholder Group Healthy Rivers: Wai Ora Project as a reference document and as such does not constitute Council's policy.

## **1 Purpose**

The purpose of this report is:

1. To describe policy options identified by council staff that manage property-level diffuse discharges of microbes, nitrogen and phosphorus; and to update the CSG on sediment policy options discussed at the June 4<sup>th</sup> CSG workshop.
2. To provide a working document to use in CSG workshops as the group investigates different policy instruments.

## **Recommendation:**

1. That the report [Policy options for sediment, microbes, nitrogen and phosphorus] (Doc #3425911 dated 19 June 2015) be received, and
2. That the Collaborative Stakeholder Group agree:
  1. That this report is a working document to use in CSG workshops and for staff to use as a reference in the development of the s32 evaluation report.
  2. The CSG provide feedback directly to staff, or at the August CSG workshop, of any additional policy options not identified in this report that could be explored.

## 2 Background

CSG have not settled on any water body limits or targets. When designing property-based policy options to change people's behaviour, it is helpful to know how big the gap is between current and desired water quality. Some information about the 'water quality gap' for each CSG scenario was provided by the Technical Leaders Group at the June CSG, in the form of A3 sheets showing colour-coded attributes alongside each water quality monitoring point. The change (e.g. level of adoption of mitigations) required on land is still not known. Because of the tight timeline the CSG are starting to investigate different policy instruments while technical information gaps are being filled and future scenarios modelled.

CSG had focused on sediment sources and activities to reduce sediment and policy options for managing sediment at the June 4<sup>th</sup> CSG workshop (CSG #12). As preparation for the session, a detailed report went out with the agenda that assessed CSG-generated policy options against the Policy Selection Criteria relevant for selecting policy instruments (Report titled "Assessment of policy instruments for sediment using the CSG Policy Selection Criteria." Document number 3258508 dated 25 May 2015, hereafter referred to as 'sediment policy options report').

Key questions which were the topic of CSG workshop session were:

1. Will a stream-limit based sediment rule be useful? (If yes, under what conditions?)
2. Is there a robust way of measuring or modelling the amount of sediment that comes off each individual property?
3. Are there any practices that might lend themselves to rules that apply generally (all of catchment/all FMU/high risk areas/certain stock types)?
4. What are our views about compulsory vs. voluntary? i.e. Should everyone **have** to show they are doing something on their property to mitigate sediment loss?

(Facilitation session notes, CSG June 2015)

An additional question which there was not time to address was:

5. Can we feasibly implement each of these options – across a whole catchment, in FMUs, or just in the high risk sediment loss areas?

Dairy, sheep and beef, horticulture and forestry sector members presented on how their industry programmes could be part of the plan change (Workshop notes, CSG June 2015).

## 3 Overview of policy options

Policy options for managing nitrogen, phosphorus and microbes leaving a property will be discussed by the CSG on day 2 of the July 2015 workshop. The process for workshopping the options will be much the same as the June CSG.

Staff have made a distinction between broadly described policy options vs. detailed design of each policy option. For instance, an incentives programme is the broad category of policy option, but when the CSG investigates it further they will need to decide details about how it would work, who it applies to and what the links are with other options. One example of

detailed design of an incentives programme, is that in order to be eligible for funding in a specific area, landowners may have to put in a competitive tender, so the funds are allocated in a more targeted way.

## 3.1 Microbes, nitrogen and phosphorus

The policy options set out in this report are generally described. The difference between this report and the sediment policy options report<sup>1</sup>, is that an analysis against the CSG criteria has not yet been written into the report. This task is intended to be carried out before the July CSG meeting.

Since the last CSG several weeks ago staff have had a number of staff workshops where economists, extension, consents, policy development and compliance experts were asked to consider:

- The effectiveness of each broad policy option in reducing the amount of diffuse discharges of microbes, nitrogen and phosphorus from an individual property.
- How each option might impact landowners
- The practical implementation of each option from an implementing agency point of view.

These questions broadly align with some of the CSGs Draft Policy Selection Criteria.

At this stage, all the broad policy options which apply to sediment, can be applied to managing microbes, nitrogen and phosphorus. The difference between the options are the specific activities or practices which mitigate the amount of diffuse contaminant leaving a property.

There is one new policy option that can be applied to managing phosphorus, and two new options that can be applied to managing nitrogen. These are set out below, and in summary in Appendix 1 Table 2.

The five key questions in section 2 of the report are also relevant for nutrients and microbes and will form part of the July workshop session. The first question being slightly different relating also to property level measurement - Is there a robust model or proxy for property-level nutrient and microbe losses?

## 4 Sediment

Seven policy options for sediment were listed as A through to G in the sediment policy options report. At the June CSG, one of these options (Policy Option A – in-stream limit for sediment in water) was removed by the CSG because it was not seen as practical or effective. This was also the general view of staff after the option had been analysed against the CSG Policy Selection Criteria.

In addition, staff have amalgamated the remaining options together because they are simply more detailed versions of the broadly described ones. The result is three sediment policy options which are Policy B, C and D. Table 1 of Appendix 1 is the same table format as in sediment policy options report, and is included so that CSG can track the changes made since the June CSG.

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<sup>1</sup> Report titled "Assessment of policy instruments for sediment using the CSG Policy Selection Criteria." Document number 3258508 dated 25 May 2015.

The broad policy options for CSG further consideration and detailed design, are set out below.

### **Policy B – Rules to control specific activities**

Rules that apply to everyone that spell out what has to be done and how (the technology or 'hardware' on a farm, and management practices).

*Permitted activity if activities stay within a specific threshold. Consent is needed if the intensity or size of a listed activity is over a threshold. If a landowner is undertaking an activity in the Waikato or Waipa catchment and they are unable to comply with the conditions of a permitted activity rule a resource consent must be obtained. The consent sets out what can be done and how it should be done.*

### **Policy B detail from June CSG – Rules to exclude deer and cattle from water**

Excluding deer and cattle from water was felt to be a practice that might lend itself to rules that apply generally. This was discussed by the CSG on 4<sup>th</sup> June workshop. There were different views about how and where and how soon this might apply. Staff are assessing the ideas raised and will come back to CSG with some detailed options.

### **Policy C – Incentives for activities on farms**

Financial incentives for undertaking activities (farm practices and technologies) on the farm that address sources of sediment [and N, P and Microbes].

*Landowners choose whether to do a farm plan (having to have a farm plan can be a criterion for eligibility for assistance with cost of actions), then choose actions they will implement. Their cost is time to do the farm plan and then a part share of the cost of their chosen actions; ratepayers pay the remainder (e.g. free expert advice for farm planning and cost-sharing of actions in the farm plan).*

### **Policy D – Rules to require property-specific activities to be undertaken**

Rules that require landowners have a farm plan that spells out what the landowners do and how [and auditing of the farm plan actions].

*All landowners in the Waikato or Waipa catchment (or specific parts of the catchment) require a resource consent. They must do a farm plan and this will set out their specific actions to mitigate sediment discharges.*

*Landowners would be audited and required to keep records supporting actions they have undertaken in the farm plan and supply these as part of the audit process*

### **New Policy Option from June CSG – Industry option**

In addition, a policy option has been added since CSG12, based on ideas from the CSG industry sector members' about policy options. Charlotte Rutherford drew similarities with Policy option D, and called this 'Option D Plus' in her presentation to CSG (Charlotte Rutherford, presentation 4<sup>th</sup> June 2015, Document # 3427545). Some similarities between the industry ideas are:

- Resource consent is not required if landowner is signed up to an industry scheme
- All landowners who are not part of their industry scheme are subject to Regional Plan rules
- Based on existing programs or accreditation such as Supply Fonterra Industry Audited Self Management or NZ Good Agricultural Practices
- Regulation and enforcement that supported these approaches.

There were differences between some ideas such as:

- Whether to make currently voluntary tool compulsory such as Land Environment Plans.
- How tailored the rules or farm plan might be to individual properties. This included some suggesting they could be covered by generic conditions in a permitted activity rule e.g. land disturbance for forestry activities, while others supported a farm plans tailored to each dairy or sheep and beef property.

(CSG12 workshop notes, Charlotte Rutherford DM# 3427545, Garth Wilcox DM #3427544, James Bailey Document #3427542, Trish Fordyce DM # 3427543)

A general descriptor of a policy from the range of ideas from these sectors is described below. Staff have labelled it Policy option I (see Appendix 1 Table 2):

### **Policy I – Rules - Industry Led Farm Plans**

Rules that require all landowners to have a farm plan that is developed in conjunction with agricultural industry (industry bodies or processors etc) and audited by industry.

*For example: Permitted activity with conditions tailored to each farm through a farm plan. Activity permitted if a landowner has an industry contract that pertains to the farm plan and action in the farm plan (between suppliers with their industry company), IF this not in place then farmers could need to get a consent, and WRC monitors if not in an industry accredited scheme.*

## **5 Microbes**

At this stage, the broad policy options for microbes are the same as those for sediment. A detail of a rule-based policy option considered last time is relevant for reducing microbes entering water has been identified. This is set out in Table 2 as a domestic stock exclusion rule (Policy H).

### **Policy H - Rules for activities on farm - domestic stock exclusion**

Rules for activities (practices or technologies) that apply to everyone

*For example: for microbes – all stock excluded*

## **6 Nitrogen**

At this stage, the broad policy options for nitrogen are the same as for sediment. Two additional policy options have been identified that specifically apply to nitrogen.

### **Policy L - Rules that set a property level limit for nitrogen**

Each property has a limit of nitrogen which is leached. The limit may be arrived by either:

1. Property-level limit of root zone nitrogen (OVERSEER model used in rule or in background).
2. Property-level limit on main N inputs (e.g. specify the winter stocking rate or crops grown, amount of bought in feed, fertiliser).

Landowners must not breach the property limit.

### **Policy K - Market Instrument, Rules that set a property level limit for nitrogen and allow transfers /trading**

A water body limit on the amount of nitrogen is the first step. This is set using technical information about the effect on the waterbody of the total amount of diffuse and point source discharges. This is the total amount that the river (or other waterbody) can assimilate and still achieve the community-held values.

The second step is to allocate an initial amount of nitrogen to each person contributing nitrogen to the total in the waterbody. This is an equity or 'fairness'-based decision.

Landowners can choose how they manage activities that contribute nitrogen to the waterbody, but must remain within their individual limit. They can transfer nitrogen permanently or temporarily between each other.

## **7 Phosphorus**

Policy options for phosphorus are the same as for sediment. One additional policy option has been identified for phosphorus.

### **Policy J - Rule – Property level limit - soil limit for Olsen P**

Landowners must not breach a property soil limit of phosphorus. The limit is based on the level of plant-available phosphate which is called Olsen P, and is set out in the rule. For example, the rule category might be a permitted activity rule which doesn't require a resource consent as long as conditions in the rule are met.

Different soil types have different agronomic optimums of Olsen phosphorous (P) levels. For instance, a soil may have an agronomic Olsen P optimum of 30<sup>2</sup>, which enables maximum pasture growth if all other growing conditions are met.

## **8 Policy options set aside for now**

### **8.1 In-stream limit policy option**

At the June CSG the Group heard from the TLG about approaches to monitoring sediment and clarity in-stream (DM#3427547), a brief overview of sediment modelling specific to property level contribution (Workshop notes) and WRC implementation staff perspective on implementing an in stream limit rule (DM # 3404905).

So far there has been one policy option removed from further consideration by CSG. This is outlined below.

### **Policy A - Regional Plan general discharges rule**

Rules based on requiring landowner to meet in stream limit (standard).

The CSG agreed based on their own experience and presentations from the TLG and WRC implementation staff perspective about the practicalities of measurement and implementation that there is not a suitable measure or proxy to sufficiently measure sediment in stream (CSG12 workshop notes). Therefore Policy A for sediment will not be explored in more detail by Council staff at this stage.

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<sup>2</sup> whether or not a soil is currently at agronomic optimum is largely a matter of the fertiliser history of a property

## 8.2 Detailed design of subsidies and rules

**Policy E – Tender - land management agreements**

**Policy F – Subsidies to promote alternative land use based on zoning of land to indicate “best” use of land**

**Policy G – Rules that permanently retire high risk land from agriculture**

To simplify the options under consideration, at this stage the above options are being considered as detail of Policy B, C and D. For example Policy B – Rules that apply to everyone that spell out what has to be done and how, could also specify land use change such as retirement of land. Policy C – Subsidies for undertaking activities, could also run a competitive tender, or subsidies for certain things such as a change of land use.

These options will be explored in more detail in the coming months.

## 8.3 Tax on fertiliser option

An additional policy option was considered and discounted by staff, based on a number of high level considerations. The option was a tax on fertiliser inputs that would be applied at a regional scale (i.e. Waikato and Waipa catchment).

“*Input taxes* place a tax on those technologies, products or inputs with negative environmental impacts. This creates a price signal aimed to reduce demand for the taxed good” (Greenhalgh et. al. 2014 page18).

The reasons fertiliser tax was set aside are as follows:

- It is difficult to measure the impact of the tax on outcomes (e.g. if there are reductions in use of fertiliser).
- It is difficult to determine how effective the tax on fertiliser would be e.g. different effects in different areas and this might not align with where reduction may have most effect.
- Landowners could take other actions/substitute inputs that result in other discharges.
- Ideally you would want to tax all sources of N, P, not just fertiliser.
- It would be difficult to levy at a property level.
- The tax level would need to be adjusted each year.
- It is unclear if it is possible to administer at a catchment level.

## 9 Summary

This report describes policy options identified by council staff that manage property-level diffuse discharges of microbes, nitrogen and phosphorus; and to update the CSG on sediment policy options discussed at the June 4<sup>th</sup> CSG workshop.

Broadly the policy options for sediment are also applicable to Nitrogen (N), phosphorus (P) and Microbes. A few additional options and or variations of the possible policy options for sediment have been described.

For the four contaminants the broad level policy options are:

1. Rules - Performance based (e.g. in stream standard or property level)

2. Rules - Practice (or process) and technology based
3. Subsidies/tender
4. Market - Trade/offsets

## **Sediment**

The broad policy options for CSG further consideration for sediment are:

- Policy B – Rules to control specific activities (i.e. practices and technologies)
- Policy B (detail from June CSG) – Rules to exclude deer and cattle from water
- Policy C – Incentives for activities on farms (i.e. practices and technologies)
- Policy D – Rules to require property-specific activities (i.e. practices and technologies) to be undertaken - Farm Plan with auditing of actions
- Policy I – Rules - Industry Led Farm Plans - Farm Plan with auditing of actions

The CSG agreed there is not a suitable measure or proxy to sufficiently measure sediment in stream. Therefore Policy A for sediment will not be explored in more detail by Council staff at this stage.

## **Microbes**

The broad policy options for CSG further consideration at this stage are the same as those for sediment.

A detail of a rule-based policy option considered by the CSG at the last CSG workshop is relevant for reducing microbes entering water

- Policy H - Rules for activities (practices or technologies) on farm - domestic stock exclusion

## **Nitrogen**

The broad policy options for nitrogen at this stage are the same as for sediment. Two additional policy options have been identified that specifically apply to nitrogen.

- Policy J - Rules that set a property level limit for nitrogen
- Policy K - Rules that set a aggregate cap, a property level limit is allocated for nitrogen and allow transfers /trading

## **Phosphorus**

Policy options for phosphorus are the same as for sediment. One additional policy option has been identified for phosphorus.

- Policy L - Rule – Property level limit - soil limit for Olsen P



These options are summarised in Tables 1 and 2.

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# 10 References

Campbell A and Cooper B 2015. Sediment sources and mitigations. Powerpoint presentation to CSG12. Dated 4<sup>th</sup> June 2015. Document #3412357.

Facilitation session notes, CSG12, 4-5 June 2015. Session 8 Refining policy options for sediment. Document #3419986.

Greenhalgh, S., Selman, M., Daigneault, A., Kaighin, C., Sinclair, R., 2014. Review of policy Instruments for Ecosystem Services. Lincoln N.Z., Manaaki Press.

TLG (presented 4th June 2015), "Monitoring sediment and clarity presentation" (John Quinn's slides presented by Bryce Cooper DM# 3427547)

Waikato Regional Council (presented 4th June 2015), Policy options for sediment (Alan Campbell and Policy Work stream staff). Document # 3404905

Waikato Regional Council 2015. Assessment of policy instruments for sediment using the Draft CSG Policy Selection Criteria. Agreement and Approval report dated 25 May 2015. Document #3258508.

Workshop notes from CSG workshop 10 (5 and 6 March 2015). Document #3300658.

Workshop notes from CSG workshop 11 (23 and 24 April 2015). Document #3359918.

Workshop notes from CSG workshop 12 (4 and 5 June 2015). Document #3419983.

## **Industry/sector presentations - 4<sup>th</sup> June 2015:**

Charlotte Rutherford (presented 4<sup>th</sup> June 2015), Industry Good Practice. How could we use in a Plan Change? Document # 3427545 –

Garth Wilcox (presented 4<sup>th</sup> June 2015) Sustainable practise and farm planning for the Horticulture industry. Document #3427544

James Bailey (presented 4<sup>th</sup> June 2015) Industry Good Practice in the Policy Plan Change – Sheep and Beef Sector Document #3427542

Trish Fordyce (presented 4<sup>th</sup> June 2015) Healthy Rivers – Wai Ora Forestry Proposal. Rules for Forestry, following One Plan, ECAN plan and Proposed Auckland Unitary Plan Forestry. Document # 3427543

**Appendix 1 Table 1: Sediment Policy Options Overview table showing changes since June CSG workshop**

	Existing Regional Plan	Existing Regional Plan	Existing Waipa Catchment Plan	Possible	Possible	Possible	Possible
Instrument	<b>Policy A</b> Regional Plan general discharges rules <del>Rules based on requiring landowner to not cause a breach of in stream limit (standard)</del>	<b>Policy B</b> Regional Plan rules <u>Rules</u> that apply to everyone that spell out what has to be done and how (the technology or 'hardware' on a farm, and the process or management practices)	<b>Policy C</b> Financial <u>subsidies</u> for undertaking activities (farm practices and technologies) on the farm that address sources of sediment	<b>Policy D</b> <u>Rules</u> that requires landowners have a farm plan that spells out what the landowners do and how	<b>Policy E</b> <u>Tender</u> where landowners tender land management agreements	<b>Policy F</b> Financial <u>subsidies</u> to promote alternative land use based on zoning of land to indicate "best" use of the land	<b>Policy G</b> <u>Rules</u> that permanently retire high risk land from agriculture
Proposed changes	Deleted by CSG because fails most criteria - not practical June 4 <sup>th</sup> 2015				Lumped into Policy D because it is a more detailed version of D	Lumped into Policy D because it is a more detailed version of D	Lumped into Policy B because it is a more detailed version of B
Policy descriptor	Regulation	Regulation	Incentives	Regulation	Incentives/Tender	Incentives	Regulation
Applies to all, applies to specific areas, or tailored for each farm	Generic	Generic	Tailored	Tailored	Tailored	Tailored	Generic

Note: Some options are mutually exclusive of others. Others approaches can be done in combination. Note: Generic means same general approach for all dischargers or groups of dischargers.

Appendix 1 Table 2: Nutrient and microbes Policy Options Overview table to discuss at July CSG workshop

	Existing	Existing	Possible	CSG Policy B detail to investigate	Possible	Possible	Existing Regional Plan	Possible
Instrument	<b>Policy B</b> Regional Plan rules <u>Rules that apply to everyone that spell out what has to be done and how</u> (the technology or 'hardware' on a farm, and the process or management practices)	<b>Policy C</b> <u>Financial subsidies for undertaking activities</u> (farm practices and technologies) <b>on the farm that address sources of sediment, N, P and Microbes</b>	<b>Policy D</b> <u>Rules that requires landowners have a farm plan that spells out what the landowners do and how and auditing of the farm plan actions</u>	<b>Policy H</b> <u>Rules for Activities (practices or technologies) that apply to everyone</u>  e.g. for sediment - stock exclusion deer and cattle  e.g. for microbes – all stock excluded	<b>Policy I</b> <u>Require all landowners to have a farm plan that is developed and audited by industry.</u>  Farmers need consent from WRC if not part of this scheme	<b>Policy J</b> <u>Rules that a landowner must not breach property soil limit on phosphorus (Olsen P)</u>	<b>Policy K</b> <u>Cap and Trade/offset Rules</u> that apply to everyone in the catchment operating under a cap on N leached from each property. Once initial rights to N allocation is decided, OVERSEER model is used to determine N leached	<b>Policy L</b> <u>Rules that set a property level limit for discharges</u>  OVERSEER is NOT used to set or monitor property-level cap. Instead, use simple look up table of N-critical factors e.g. winter stock units
Variations could include	<u>Rules that permanently retire high risk land from agriculture</u>	<u>subsidies to promote alternative land use</u>  OR <u>Tender</u>					could have <u>cap and trade</u> if a suitable proxy for property level Phosphorus	This limit could be part of a <u>trade/offset</u>
Policy descriptor	Regulation	Incentives/ Tender	Regulation	Regulation	Regulation	Regulation	Market	Regulation
Applies to all, or tailored	Generic	Tailored	Tailored	Generic	Tailored	Generic	Generic	Generic