New Integrated Assessment Framework
Prepared for the CSG 24th April 2015 by Liz Wedderburn

The CSG requested at their CSG #9 meeting (Karapiro, 9th and 10th February) that the TLG provide an update on this work stream, describing detail of the assessment process, the proposed set of indicators, and how different information would be drawn together and provided to them for use with the CSG's draft policy selection criteria.

In response the TLG noted that it would develop a new integrated assessment framework that will incorporate the policy selection criteria, the indicators identified by the CSG at its Feb 9th meeting, the Waikato Region Progress indicators and the content of the WRA report card.

Update:
Draft Policy Selection Criteria
Liz Wedderburn, Antoine Coffin and Beat Huser WRC went through the CSG draft selection criteria and noted that the criteria can be sorted into:

- outcomes;
- guiding principles or processes that could be used to test the impacts of policy and
- indicators to assess the impact of scenarios; Table 1 shows the split.

Table 1 Draft Policy Selection Criteria split into outcomes, principles and process and potential indicators

Outcomes	**Principles and processes that can be used to run the ruler over the impact of policy**	**Potential Indicators to assess impacts of scenarios and CSG recommendations**
Provides for Maori cultural aspirations		• Maori retain and use their Taonga • Beneficial cultural outcomes
Gives positive social and community benefits		• Minimise social disruption • Provide social benefit • Enhance use of river • Outcomes people identify with, own and feel proud of
Achieves the restoration and protection of native habitats and biodiversity		• Resilient freshwater ecosystems • Healthy populations of indigenous plants and animals
Optimise environmental, social and economic outcomes	• Aim for least cost solutions • Provide confidence and clarity for current and future investment;	

	• Provide realistic timeframes for change;	
Acceptable to the wider community	• Achieve sound principles for allocation; • Recognise efforts already made; • Exhibit proportionality	
Realistic to implement, monitor and enforce	• Able to be measured, monitored and reported; • Implementable and technically feasible; • Administratively efficient	
Allows for intergenerational flexibility	• Fosters innovation • Encourage positive action being taken • Allow for change as new information and issues arise • Provide flexibility of future land use and future review	
	• Supported by clear evidence • Transparency and prioritisation	

Building on the outcomes, principles and indicators identified in the policy selection criteria we then linked this with the Waikato Progress Indicators and aligned them to the indicators that the CSG identified on the 9th of February meeting. **This has resulted in a draft of the new integrated assessment framework for CSG comment and approval, Table 2.**

Table 2: New draft of integrated assessment framework

Outcomes	**Policy selection Criteria indicators**	**Waikato Progress Indicators**	**CSG indicators generated at Karapiro (9th February)**
Provides for Maori cultural aspirations	• Maori retain and use their Taonga • Beneficial cultural outcomes	• Te Reo Maori speakers	• Protected Waahi Tapu • Protected Waahi Taonga • Opportunity to tell stories related to river • In line with Vision and Strategy
Gives positive social and community benefits	• Minimise social disruption • Provide social benefit • Enhance use of river • Take account of unique features and benefits • Outcomes people identify with, own and feel proud of	• Life satisfaction • Housing affordability • Crime • Life expectancy • Perceived health • Social connectedness • Community pride • Cultural respect	• Local, regional and national domestic food chains are resilient and able to provide food that is locally produced, healthy and nutritious • Capability to produce electricity is not diminished to provide for communities, health, safety and wellbeing • Cost of treating waste water discharges is not prohibitive to communities. • Employment numbers

		• Community engagement • Water use	• Desirable communities to work and live in; Maintain and improve community amenities to support population; • Flow on effects on the visibility of rural towns/communities • Communities involved in recreation and greater use of the river – recreation and food gathering
Achieves the restoration and protection of native habitats and biodiversity			• Improved ecosystem health e.g. foodwebs/macroinverterbrates/native fauna and flora.
Economic		• Income inequality • Employment • Regional GDP	• Employment (jobs created/jobs lost) across the value chain • Viable farm/urban businesses (effect on rural service towns/GDP effect) • Resource use efficiency (highest/best use) • Create new opportunities for

			Tourism/Visitors • Opportunity to develop “new business” – value of the “restoration industry” i.e. Non-traditional forestry, e.g. native hardwoods • Food remains affordable for all aspects of our communities and is not substituted for lower quality nutrition. Cost of living indices? • Land values not destroyed

Integrate the WRA report cards with this process and framework

To ensure consistency we are working closely with those developing the WRA report card. To date the focus of the development of the report card has been on biophysical indicators. Therefore all the indicators related to the values and their attribute states that CSG have been working on are included in the WRA report cards and the new integrated assessment framework will utilise these and not attempt to duplicate. An example of what this looks like is in Figure 1.
The report card developers intend to use the Waikato Progress Indicators to populate their socio-economic indicators and thus the work that this project is undertaking will inform the WRA work in the socio-economic area, again avoiding duplication.

Accessing the data to populate the indicators

In most instances we will only be able to gain regional-scale data for the social and cultural indicators. The water quality and river health indicators will be river site specific. The economic data will be produced at the regional, catchment and farm scale through the application of the Farm Economic Model and Regional Input/Output modelling. Examples of the data generated by these models are:

- level of farm profit
- level of forestry profit
- reduction in loading of each contaminant in each spatial zone (subcatchment)
- attributes for each monitoring station (subcatchment)
- production in each sector by each spatial zone (subcatchment)
- land use change for each spatial zone (subcatchment)
- level of use of each different type of mitigation in each land use in each spatial zone (subcatchment)
- regional income
- regional employment
- regional income by spatial zone
- regional employment by spatial zone
- regional income by sector
- regional employment by sector

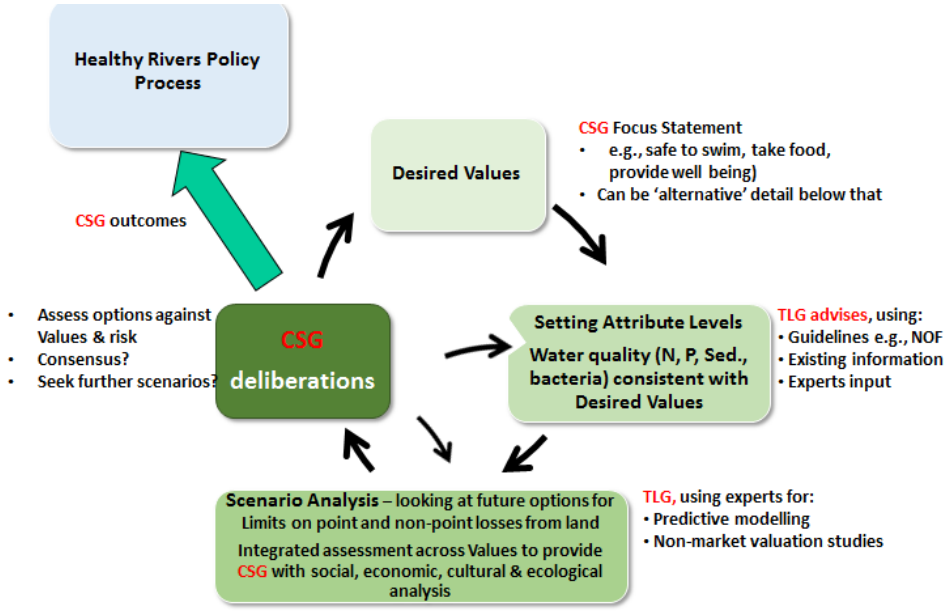
We are able to gain some baseline data from the work undertaken by the Waikato Progress Indicator (WPI) team. There are also a range of reports and existing survey material identified by the social impact expert group that we can explore for consistency and relevance. In some instances we will have to undertake surveys of

community. **However before embarking on producing a baseline we do need the CSG to be comfortable with the indicators indicated in the framework.**

It is relatively easy to analyse employment numbers i.e. quantitative data but other indicators will be qualitative. Many of the indicators will require a narrative built around them to give a better understanding of what they look like e.g.: social disruption what does that comprise of and how would you measure whether it was increasing or decreasing?; what does a desirable community look like? and how would you measure the impact of a scenario? Through developing these narratives greater clarity and detail can then be informed by data.

Presentation and use of the integrated assessment framework results

The intent of undertaking an integrated assessment is for the CSG to explore the impact of scenarios and resulting CSG recommendations on objectives and targets across not only achieving the water quality values and attributes but also the whole of system impact including economic, social and cultural. This will make transparent any win-win solutions and unintended negative consequences. Where the results are not acceptable to the CSG the "what if" questions will arise and it is at this point in the process that changes in the scenario content can occur with associated further analysis to see whether different circumstances will alleviate any unacceptable or unpalatable outcomes i.e. the process is iterative Figure 2.



There are a variety of ways of visually presenting this information in an integrated manner: The Deliberation Matrix has been used in Canterbury; Wheel of water is currently under construction, the Waikato Progress Indicators, and the Waikato Report Cards. Examples of each follow.

Deliberation Matrix

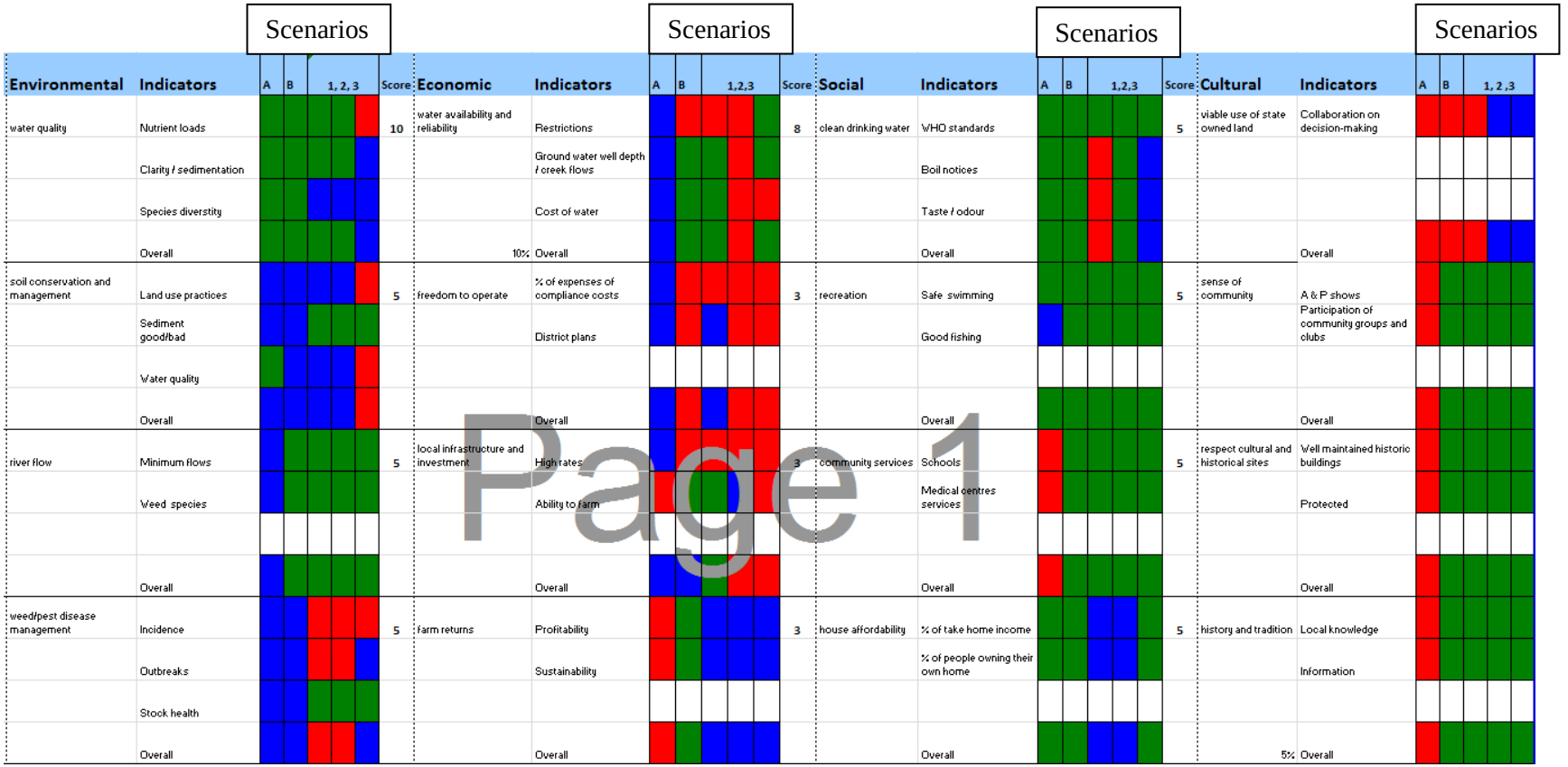
The deliberation Matrix is constructed to allow different stakeholders to visualise their judgements on the impact of scenarios on their desired outcomes. The important point

to emphasis is that the process around finalising those judgements ensures robust deliberation, around the table, on the acceptability or otherwise of impacts and is informed by data supplied through technical analysis. An example of the Deliberation Matrix output from a process in Canterbury is illustrated in Table 3.

Five scenarios were constructed one the current land use, three built around greater intensification associated with increase in area irrigated and one based on meeting water targets. Each of the scenarios was assessed for acceptability across a range of indicators representing outputs of interest to the stakeholder groups. The colours represent the judgement around acceptability of the scenario to achieve the outcome. Green is acceptable; red unacceptable and blue indicated not enough information to make the judgement. These judgements were made after hearing information presented by the TLG equivalent on the impact of the scenarios on the range of values, attributes and indicators agreed to by the stakeholder, group.

The group used this information to identify the characteristics within the scenarios that resulted in an acceptable judgment and worked on those that were deemed unacceptable to turn them into acceptable. Through this iteration they landed on a set of solutions.

Table 3 Deliberation Matrix an example from Selwyn Te Waihora limit setting process

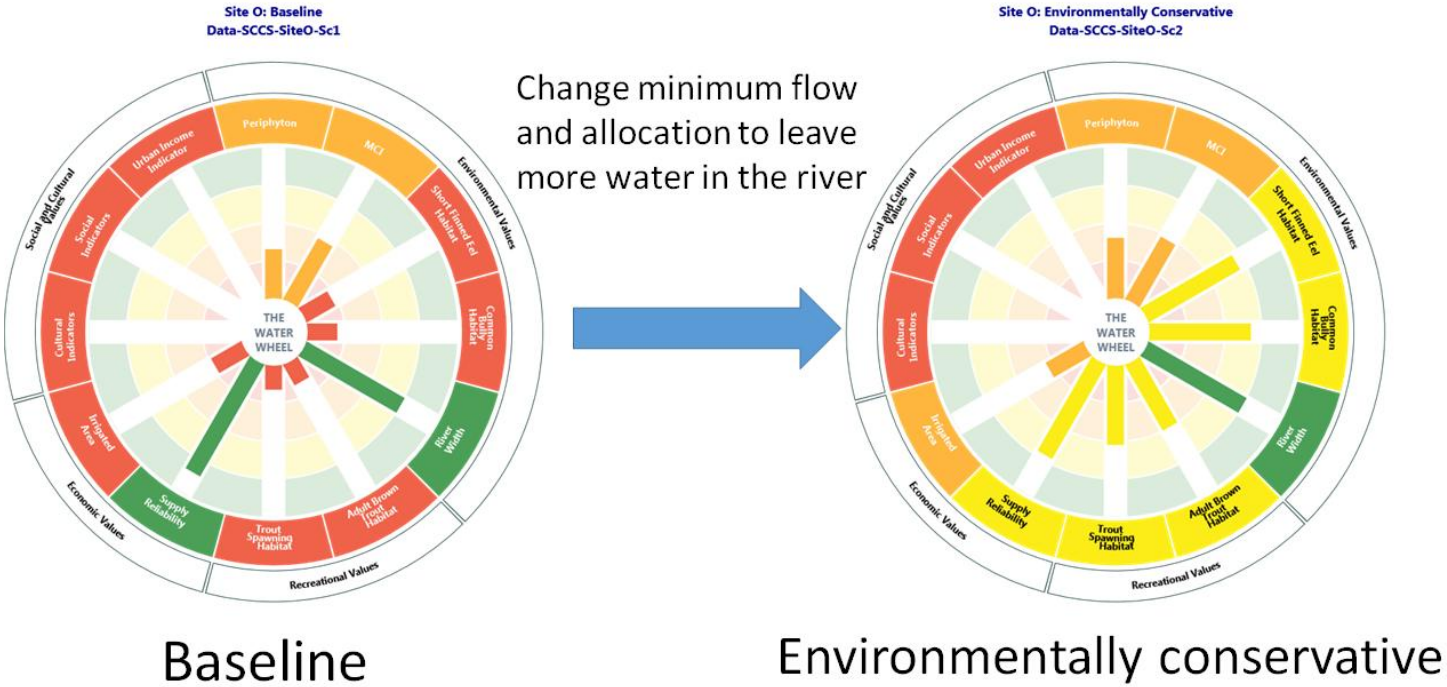


Page 1

Water Wheel

The Wheel of Water is a tool and process currently under development for use with catchment communities to enable them to identify outcomes they want for the catchment. Baseline figures are generated and illustrated in the wheel. Judgements are made on performance for each outcome by the community group and actions identified to improve performance. Visually the impact of these actions is presented through the wheel, informed by analysis of scenarios using a mixture of modelling and empirical data. Wheels for both current state and for scenarios can be prepared and shown beside one-another to illustrate changes, both positive and negative. Comparing such wheels from different scenarios can be a useful way for collaborative groups to deliberate on their acceptability or otherwise as they do summarise which Values will be improved, which Values not change, and which Values will deteriorate.

Water wheel use to illustrate scenarios – a Canterbury flow example

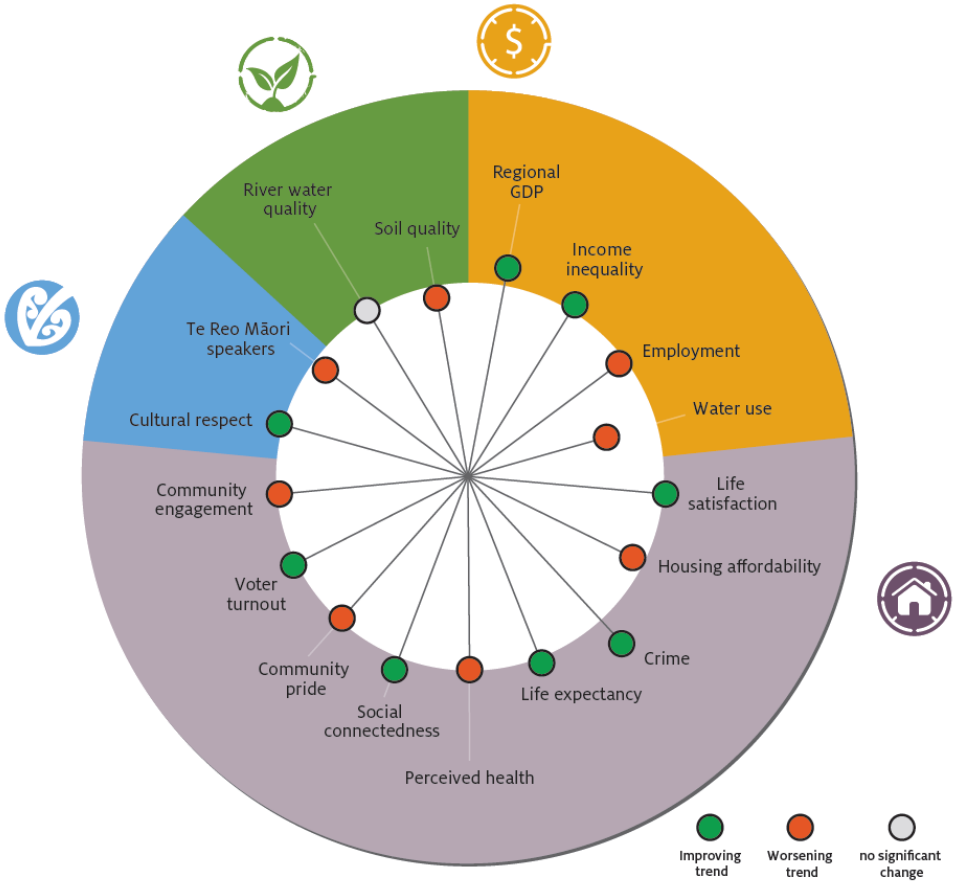


Baseline

Environmentally conservative

Waikato Progress Indicators

This illustrates the difference in the Waikato indicator states between 2007 and 2014.



Waikato Report Card This is an example of what a report card could look like and how it can be used to demonstrate progress

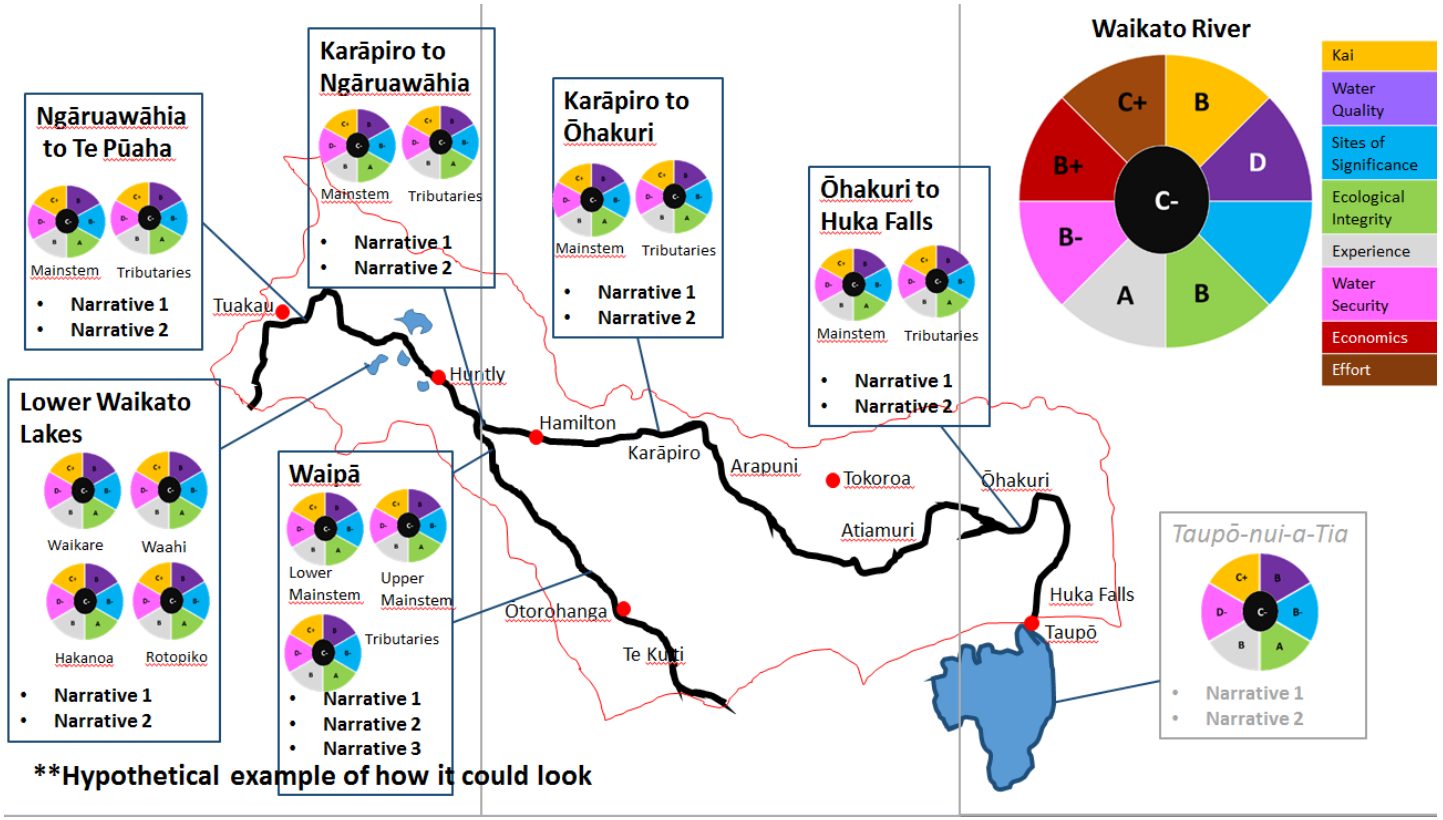
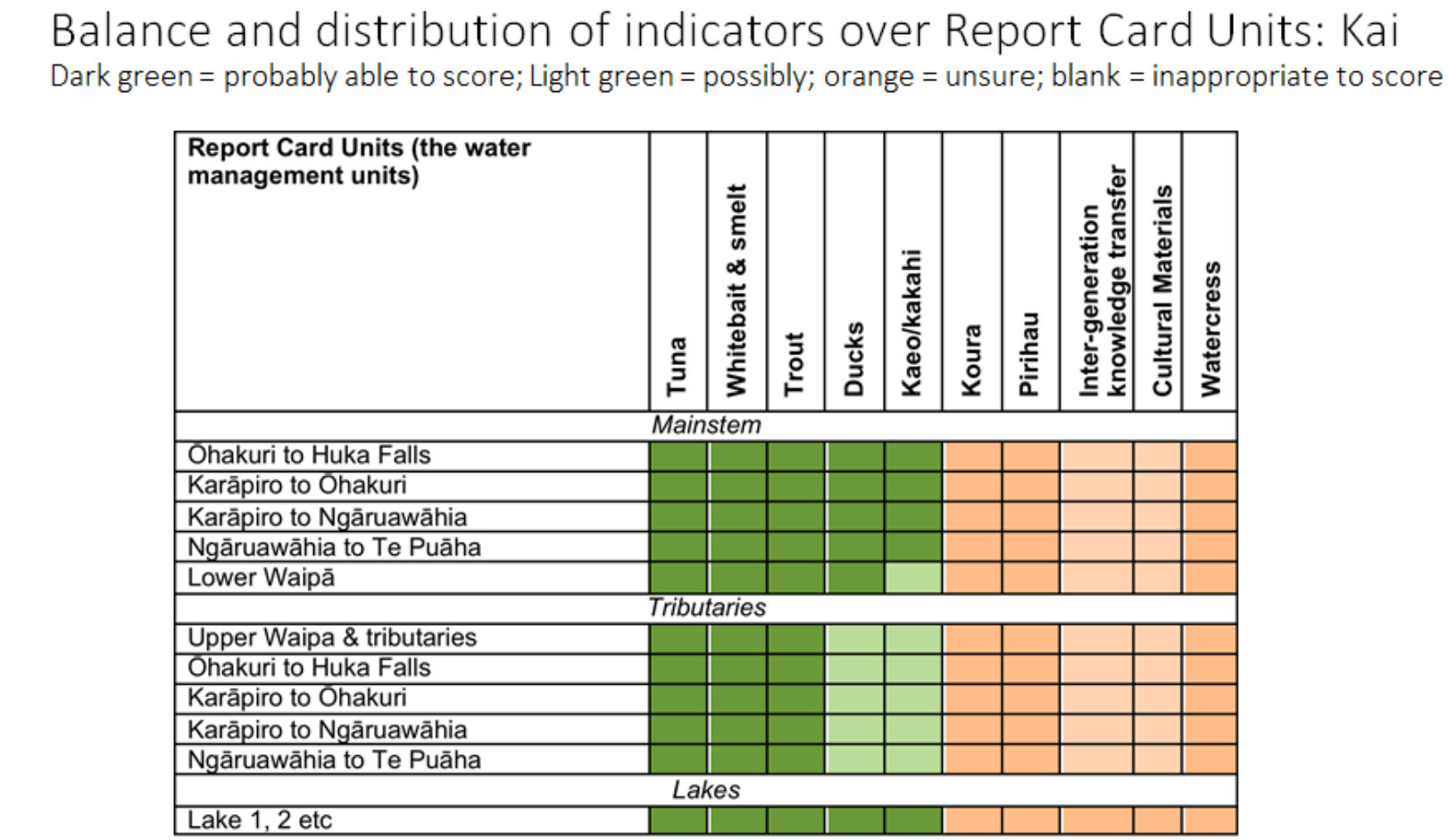


Figure 1 illustration of the indicators that will be used in the Waikato Report card for the example of Kai



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