Mana Tohu Mātauranga o Aotearoa
New Zealand Qualifications Authority

Review of Achievement Standards (RAS)
Exemplar

Level 1 Geography

Achievement Standard 91935

Demonstrate understanding of decision-making to respond to a geographic challenge in Aotearoa New Zealand or the Pacific

Achievement

TOTAL: 04

Make sure you have the paper Resource Booklet 91935R. This contains **new** material, as well as the resources you have viewed in class.

The Mackenzie Basin is used by a number of different stakeholders, including:

- Ngāi Tahu
- Meridian Energy
- Tourism operators
- Farmers.

(a)

(i)

Outline how THREE of these stakeholders currently use water in the Mackenzie Basin.

Stakeholder 1 Meridian Energy

How they currently use water in the Mackenzie Basin:

Meridian Energy use the basin by owning and operating 6 of the hydroelectric power stations in the 'Waitaki hydro scheme'. This scheme that Meridian are part of "holds 50% of New Zealand's hydroelectric storage" which makes it extremely important to New Zealand. The six power stations that Meridian operate and own "generate enough electricity each year for about 832,000 average New Zealand homes.

Stakeholder 2 Ngai Tahu

How they currently use water in the Mackenzie Basin:

While Ngāi Tahu used to use the water in the Mackenzie Basin as a travel route as well as for seasonal settlements and food-gathering sites, but now they work with Meridian Energy to "preserve the New Zealand native tuna." Ngāi Tahu and Meridian use the tuna population as a "key indicator of the quality of these waterways." These two groups also work together to make

sure the species is protected. Ngāi Tahu "oversee delivering the trap and transfer program." This program is used by trapping and transferring the elver into dam headwaters and moving adults back downstream. This provides a sustainable amount of tuna in the Waitaki catchment.

Stakeholder 3 Farmers

How they currently use water in the Mackenzie Basin:

From a graph showing the types of farms in the Mackenzie Basin in 2017, the highest number of farms were those with only sheep or only beef cattle, or both. There were just over 60 only sheep farms, just under 40 Beef cattle farms, and just over 40 sheep and beef cattle farms. Farms such as these need to have plants such as grass to feed their animals, using water from the Mackenzie Basin to help grow these plants.

(ii)

Outline the common challenge that all stakeholders of the Mackenzie Basin will face in relation to access to water **in the future**.

The 156 NIWA report says that the Mackenzie region has been "highlighted for a forecasted big rise in the number of hot days" which are days above 25 degrees celcius. With more hot days the report predicts "less frosts, snow, and rain." The report also states that "An increase in temperature and drought potential are among the main impacts". This is important because it means that there will be much less water in the Mackenzie Basin to work with. For example there will be less water for the hydroelectric stations to work with, meaning less power. It will also mean less water for farming and plants/crops. These are just some of the major impacts that stakeholders will face. It states that "By 2040, autumn might be drier in the Mackenzie Basin, with up to 10% less rain."

The challenge of access to water has placed pressure on the local council to provide a solution.

Three possible ways to overcome this challenge are:

- Option A – place a limit on the amount of water that each group can use
- Option B – charge farmers for the use of water for irrigation
- Option C – continue with current water use and defer a decision for 10 years.

(b)

Explain how any TWO of the stakeholders from the top of the page would view each of these options. You may use a combination of any of the four stakeholders to discuss each option.

Option A – place a limit on the amount of water that each group can use

Stakeholder 1: Meridian Energy
Their viewpoint or perspective of the option:

This may effect Meridian Energy as they might have less water to convert into power, meaning they wont be able to supply as much power to New Zealand homes. This will bring down the number of supplying enough power for 832,000 average New Zealand homes. This may also lose Meridian money.

Stakeholder 2: Farmers
Their viewpoint or perspective of the option:

This will affect farmers by limiting the amount of water they can use for their plants/crops for the farms with animals on them. Most of the farms in the Mackenzie Basin are ones with sheep, beef cattle, or both.

Option B – charge farmers for the use of water for irrigation

Stakeholder 1: Farmers
Their viewpoint or perspective of the option:

As most farms in the Mackenzie Basin are ones with sheep, beef cattle, or both, farmers need water to grow their grass and crops so they need water from the Basin. This will make farming more expensive with the farms specified above.

Stakeholder 2: Tourism operators
Their viewpoint or perspective of the option:

Depending on who gets the money from the charging of farmers, the Tourism industry might get some of this money. This would mean more funding for tourism operators.

Option C – continue with current water use and defer a decision for 10 years

Stakeholder 1: Farmers
Their viewpoint or perspective of the option:

This will be good for farmers in the time being, as it will mean they get to use the current amount they are using, but the decision in 10 years may not go their way and they might have to start paying for water down the line.

Stakeholder 2: Meridian Energy
Their viewpoint or perspective of the option:

This will mean Meridian keep getting on using the amount of water they currently use, meaning they can keep supplying the same amount of power to homes, if not more for the next 10 years.

(c)

(i)

Choose one option that would best solve the challenge of access to water in the Mackenzie Basin now and in the future.

- ○ Option A – place a limit on the amount of water that each group can use
- ◉ Option B – charge farmers for the use of water for irrigation
- ○ Option C – continue with current water use and defer a decision for 10 years

(ii)

Explain why you chose this option. To do so you should:

- consider the viewpoints of the stakeholders involved
- consider why this option is better than the others
- integrate specific evidence from all of the resources supplied.

Ngāi Tahu-
This option works well for Ngāi Tahu as it means that they can continue working with Meridian Energy how they currently are, which is working well in terms of keeping a sustainable population of Tuna. This is also good from a culutral perspective as tuna have a significant cultural importance to Ngāi Tahu. This option is better than placing a limit on the amount of water that each group can use because it means that Ngāi Tahu won't lose anymore water than they have at the moment. This also means they can continue to "oversee delivering the trap and transfer program." with the amount of water that they currently have, meaning there will continue to be a sustainable population of tuna in the future.

Meridian Energy-
This option works well for Meridian Energy as they can continue to operate with the same amount of water and provide the same amount of electricity to 832,000 average homes that they do now. It is better than the other options because it means they won't lose any more water than they use now as it won't be limited for them.

Tourism Operators-
Tourism operators won't lose anymore water than they use now.

Farmers-
This may not be the best option for farmers as it means they will have to pay much more for an important resource to them.

Achievement Exemplar 2022

Subject	Level 1 Geography RAS	Standard	91935	Total score	04

Q	Grade score	Annotation
(a)		The candidate discusses how Meridian Energy, Ngāi Tahu, and farmers currently use water. The challenge is outlined in terms of climate change and possible future water restrictions.
(b)		The viewpoints of two groups of people for each option is discussed.
(c)		Option B is chosen and reasons are given – although the discussion around tourism and farming was vague. While Option A is briefly discussed, the candidate does not refer to why Option C was not chosen. The answer also lacks sufficient specific supporting information for Merit.