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RED MINISTERS

Ruamāhanga (Wairarapa) Aerial Hydrogeology Survey

Date:	17 February 2020	**Priority:**	Medium
Security classification:	In Confidence	**Tracking number:**	2308 19-20

Action sought		
	Action sought	**Deadline**
Hon Shane Jones **Minister for Regional Economic Development**	**Agree** to the recommendations outlined in this briefing.	20 February 2020
Hon Grant Robertson **Minister of Finance**		20 February 2020
Hon Phil Twyford **Minister of Transport** **Minister of Economic Development**		20 February 2020
Hon David Parker **Minister for Trade and Export Growth**		20 February 2020
Fletcher Tabuteau **Parliamentary Under-Secretary to the Minister for Regional Economic Development**	**Note** the contents of this briefing.	20 February 2020

Contact for telephone discussion (if required)			
Name	**Position**	**Telephone**	**1st contact**
David van der Zouwe	Head of Investment Management	Privacy of natural persons	✓
Privacy of natural persons	Director - Water	Privacy of natural persons	

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BRIEFING

Ruamāhanga (Wairarapa) Aerial Hydrogeology Survey

Date:	17 February 2020	**Priority:**	Medium
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Purpose

This provides Regional Economic Development (RED) Ministers with further information requested for the Ruamāhanga (Wairarapa) Aerial Hydrogeology Survey project and seeks approval of the project.

Recommended Action

1. The Ministry of Business, Innovation and Employment recommends that you:

   a. **Note** that RED Ministers considered an application for funding for the Ruamāhanga (Wairarapa) Aerial Hydrogeology Survey project (the **Project**) at the 4 December 2019 meeting and deferred making a decision pending the provision of more information on how the water resources that will be identified through this mapping would be used**.**

   Noted

   b. **Note** that the purpose of the Project is to better understand the ground water resource in the Wairarapa.

   Noted

   c. **Note** the Project will not involve making decisions about the management, allocation or use of water. The management of water will continue to be governed by instruments under the Resource Management Act. It is also expected to be shaped by the work of the Wairarapa's Water Resilience Committee, who are developing a Water Resilience Plan, with support from the PGF.

   Noted

   d. **Note** recent studies support a change of land use over time in the Wairarapa, which are forecast to markedly shift away from dairying toward arable crops, viticulture and horticulture, in part due to climate change.

   Noted

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c. **Agree** to approve Greater Wellington Regional Council's application for a $1.402 million grant from the Provincial Growth Fund to carry out aerial mapping of deep aquifers in the Wairarapa, subject to the following conditions:

i. The applicant engages with Commercial Information;
ii. Due diligence on local industry co-funders is completed;
iii. The results of the project are made publically available; and
iv. Approval of the project plan and suppliers by the PDU.

Agree / Disagree

David van der Zouwe
Head of Investment Management
Provincial Development Unit

..... / ..... / .....

Hon Grant Robertson
Minister of Finance

..... / ..... / .....

Hon Phil Twyford
Minister of Transport
Minister of Economic Development

..... / ..... / .....

Hon David Parker
Minister for Trade and Export Growth

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Hon Shane Jones
Minister for Regional Economic Development

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Background

1. On 18 September 2019, the Greater Wellington Regional Council (GWRC) applied to the Provincial Growth Fund (PGF) for funding for an aerial hydrogeological survey of deep ground water in the Wairarapa (the **Project**). Commercial Information
2. The application is part of an integrated package to address a major issue in the Wairarapa, which is the reliability and sustainability of the supply of water especially given climate change.
3. Commercial Information
4. On 4 December 2019, RED Ministers deferred making a decision on funding towards the Project and directed PGF officials to provide more information on how the Wairarapa plans to use the water resources that will be identified through this mapping. The original proposal considered is attached as Annex One for reference.

Plans for water resources

5. The Wairarapa Aerial Hydrogeology Survey Commercial Information projects will provide a better understanding of the water that is available in the Wairarapa. The question of who the water will be allocated to and for what use will be governed by the Resource Management Act, Natural Resource Plan and Whaitua Implementation Plan and will be influenced by the work of the Water Resilience Committee and its Water Resilience Plan.
6. GWRC is in close contact with the Commercial Information project team and is learning from their experience of the project Commercial Information

Climate Change

7. As an inland, east coast locality, the Wairarapa is already feeling the effects of climate change. These effects include increased average temperatures, more extreme hot days, less frosts, longer summers, more intense and frequent droughts, less water in its rivers and lower groundwater levels. This situation is only expected to worsen for urban and rural water users.
8. This situation means the GWRC urgently needs to increase its understanding of the key areas of the Wairarapa's groundwater resource to allow better choices to be made about how and to what extent water is used. Commercial Information

Water Management

9. The purpose of the aerial hydrogeology survey is to better understand the characteristics of the ground water resource in the Wairarapa by filling a significant gap in available knowledge. The technology will enable the GWRC to look at the characteristic resistivity of subterranean strata and build a comprehensive picture of the underlying geology. This knowledge will improve the understanding of the Ruamāhanga valley's groundwater resource and its interface with surface water so the GWRC and the territorial authorities will be better placed to implement a sustainable water management regime for the entire river valley.
10. This project is not about how water will be allocated and used in the Wairarapa. It is about better understanding the water resource, so more informed decisions can be made about its

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use (at both the regulatory and community level). Resource Management Act mechanisms in the Wairarapa will continue to apply for water allocation, primarily through the Natural Resource Plan and the Whaitua Implementation Plan.

11. In terms of other relevant initiatives:
    - Mechanisms adopted by major users such as Wairarapa Water Ltd plan to require its users to have Environmental Farm Plans that meet strong environmental requirements. It is engaging Commercial Information to prepare a report on Landuse Change to guide its decision-making and define the support services it could offer users of the water.
    - Commercial Information an alliance of the three district councils Commercial Information has a Water Resilience Committee, which includes representatives from among the water users, and is responsible for the preparation of a Water Resilience Plan for the Wairarapa, which will provide a framework for decisions on allocations and future water projects. Commercial Information

Land and Water Use

12. The economic expectations of future land use in the Wairarapa are that dairy farming will decrease and land use by viticulture, horticulture and cropping will significantly increase. This trend will be driven by a hotter, drier climate.
13. One study supporting this view is a report Commercial Information on future land-use in the Wairarapa's river valley. This report forecasts that land used for dairy farming will reduce by 45% by 2100 and that land used for viticulture and horticulture will increase threefold while arable crops will almost double.

Thousand hectares	***2020***	***2050***	***2100***
Dairy	9	8	5
Arable crops	4	5	7
Viti & horticulture	3	8	10
Sheep & beef finishing	1	0	0
Other (lifestyle)	1	7.5	6.5
Total	18	28.5	28.5

Source: Review of projections as to future land use for Wairarapa Water Limited, Commercial Information

14. The same report indicates that the largest land user in the Wairarapa, which is sheep and beef farming in the surrounding hill country, will no longer be viable on the valley floor by the middle of the century. If this forecast is correct, it will provide an even greater impetus for land-use change in the region.
15. GWRC has informed the PDU that the Natural Resources Plan for the Wellington Region is approaching completion, and will include the requirement of a 7% reduction of nutrients into the Ruamāhanga River. In order to achieve this, any land use change that would increase nutrient loads to the environment will not be granted resource consent. This includes conversion to or intensification of diary. Furthermore, agri-consultants advise that future diary expansion will be uneconomic due to additional water requirement costs, negative climate change effects and the more stringent planning controls being introduced.

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Further Information

Lessons from the use of Commercial Information in New Zealand

16. The Commercial Information is being used in an Aerial Hydrogeology Survey in the Commercial Information and is being co-funded by the PGF as part of the Commercial Information. The field work started on Commercial Information. The data will then be analysed Commercial Information, under the direction of scientific experts Commercial Information, before it goes for final analysis and modelling Commercial Information. The whole process takes two years. GWRC is in close contact with the people who are working on the survey and is learning from their experience of the project Commercial Information

17. Commercial Information It is used extensively around the world for geological surveys. This technology was first used in New Zealand Commercial Information Northland Regional Council is also considering using it.

18. The main lessons that GWRC expects to learn from the experience Commercial Information are how to interpret signals and interpolate data when metal structures interfere with the signals; flying the helicopter over New Zealand communities; and working within local aviation rules.

The views of iwi

19. There are two iwi in the Wairarapa, Ngāti Kahungunu ki Wairarapa and Rangitāne. They both have Trusts that have been closely engaged in discussions about water management in the Wairarapa, including the use, access and ownership of the aquifers. The two iwi are represented on the Wairarapa's Water Resilience Committee. They are also participants in the GWRC's Whaitua Ruamāhanga programme and are engaged with water-related projects and the resource consent process.

20. The two iwi both fully support the Aerial Hydrogeology Survey as a means to gather information and data on the groundwater resource in the Wairarapa. This support was confirmed in January 2020 through conversations by the PGF with the two Trust Chairpersons, Privacy of natura Their support for using any water will be based on *kaitiakitanga* and assessments of the impact on culture, society and the environment.

Annexes

Annex One: PGF proposal considered by RED Ministers on 04 December 2019.

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Annex One: Ruamāhanga (Wairarapa) Aerial Hydrogeology Survey Project Overview

Project name	Project description & benefits	Comment	Total cost of project	Requested PGF Investment	PDU Recommendation	IAP Recommendation
Ruamāhanga (Wairarapa) Aerial Hydrogeology Survey	**Applicant:** Greater Wellington Regional Council **Region:** Commercial Information Greater Wellington Regional Council (GWRC) requests a $1.402 million grant from the PGF to undertake aerial mapping of all of its deep aquifers in the Wairarapa. This project is part of the Water Security Package for the Wairarapa. Commercial Information Commercial Information In the absence of aerial mapping of aquifers, information on groundwater resources has been traditionally gathered through the borehole networks and is typically subject to significant limitations. The data is generally site specific, expensive and spatially limiting compared to the quality and quantity of information that aerial mapping can gather. The project aligns with the PGF's approach to support regional prosperity by enabling access to reliable water for sustainable land development through investment in water storage. The hydrogeology survey will provide a better understanding of the aquifers and the role that groundwater can play in regional water sustainability. The survey data can support the Wairarapa's long-term water resilience planning and future water related projects. It will also be beneficial for wider water management considerations and support better environmental outcomes.	The PDU recommends that you approve Greater Wellington Regional Council's application for a $1.402 million grant from the PGF to undertake aerial mapping of deep aquifers in the Wairarapa, subject to the following conditions: a. The Applicant engages with Commercial Information to leverage learnings. b. Due diligence on local industry co-funders is completed. c. The results of the project are made publically available. d. Approval of the project plan and suppliers by the PDU. It should be considered if there is a sufficient link between aerial mapping and the sustainable, productive use of water as opposed to the Council's core obligations under the Resource Management Act 1991. The estimated costs of the project are as follows: • Data preparation and planning: $Commercial Informatio • Project management and communication: $Commercial Informatio • Aerial survey data collection: $Commercial Informatio • Commercial Informatio data processing and inversion: $Commercial Informatio • Hydrogeological Commercial Information modelling: $Commercial Informatio The co-funding arrangements are as follows: • GWRC: $Commercial Informat confirmed. • South Wairarapa District Council: $Commercial Inform confirmed. • Carterton District Council: $Commercial Inform confirmed. • Masterton District Council: $Commercial Informat confirmed. • Local industry: $Commercial Informat approved in principle and subject to due diligence by the PDU. Commercial Information the scale of the project is within the Council's capacity to manage effectively. Commercial Information . Recent studies show that access to high quality water in the Wairarapa is a significant potential weakness. Climate change, tighter environmental constraints and increasing demands on water continue to limit Wairarapa's economic and employment opportunities. A large amount of work has been conducted to justify the need for advanced technology and data to improve the region's water resilience management. The project is not for three waters infrastructure but will have	$Commercial Information	$1.402 million (grant)	Approve	Approve

		some benefit for local authorities in respect to three waters. **DOC** is supportive of the project because it is the least intrusive method of conducting a survey of underground water resources. DOC notes that data uncovered by this technology could be extremely valuable for other agencies in making decisions on future land use. DOC would be supportive of this data being made available to the public sector for future use. **TPK** is supportive of the application. TPK are pleased that the aspirations of mana whenua have been considered as part of the proposal, specifically that aerial mapping is critical for achieving their aspirations in relation to the Wairarapa regional water resource planning process. **MPI** supports this application, subject to: • Confirmation of technology proof of concept from a similar project Commercial Information • Validation of linkages, visibility and complementary working arrangements with the other current Wairarapa water projects. • Details of how the information will be used and accessed e.g. being publically available. • Confirmation of all co-funding partner details and levels. • Provision of project plans, key milestones, payment gates and timeframes. • Pending the survey outcomes, details of regional water locations, intended uses, access, priority and cost. The PDU considers that the technology has been proven through use overseas, and that the linkages between the other Wairarapa water projects are clear. The PDU considers that the last four bullet points raised by MPI are adequately covered in the standard PDU processes and the proposed conditions set out above. DIA provides the PDU with regular updates on local government bodies. Given the information obtained, the PDU has no concerns regarding the applicant.				

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Ruamāhanga (Wairarapa) Aerial Hydrogeology Survey

Project overview

Name of the project	Ruamāhanga (Wairarapa) Aerial Hydrogeology Survey
Region	Wairarapa
Tier and type	Tier 3: Infrastructure
Applicant	Greater Wellington Regional Council
Estimated total project cost	$Commercial Information
Amount of funding sought from the PGF	$1.402 million
Financial instrument requested	Grant
PDU recommendation	**Approve**

Background

1. Greater Wellington Regional Council (GWRC) has applied for a $1.402 million grant from the PGF to undertake aerial mapping of all deep aquifers in the Wairarapa. This work will form part of the Water Security Package for the Wairarapa.
2. Recent studies have recognised that access to high quality water in the Wairarapa is a significant risk to the resilience of the Wairarapa region in the future. A significant amount of background work has been conducted to justify the need for advanced technology and data to improve the Wairarapa's water resilience management.
3. Climate change, tighter environmental constraints and increasing demands on water will continue to constrain the Wairarapa's economic and employment capabilities and threaten its social and cultural resilience.
4. Commercial Information
5. Commercial Information There will be operational learnings throughout the project with the following timeline:

Planned Activity	Timings
Survey (helicopter flying)	Commercial Information
Additional Data collection (i.e. drilling)	Commercial Information

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Data Processing	Commercial Information
Models	Commercial Information
Project Close	Commercial Information

6. Commercial Information

7. This project will provide better understanding of the aquifers and the role that groundwater can play in regional water sustainability. Until aerial mapping technologies, any information about groundwater resources was restricted to data gathered through the network of boreholes and subject to significant limitations. The data was site specific, expensive and spatially limiting compared to the quality and quantity of information that aerial electromagnetic mapping can gather.
8. The data from the aerial hydrogeology survey will support the Wairarapa's long-term water resilience plan and future water related projects. It will also be beneficial for wider water management considerations and support better environmental outcomes.
9. The project aligns with the PGF's approach to support regional prosperity by enabling access to reliable water for land development through investment in water storage. The proposed project is not for three waters infrastructure but will have some benefit for local authorities in respect to the three waters.

PDU recommendation

10. The PDU recommends that you approve GWRC's application for a $1.402 million grant from the PGF for the Ruamāhanga (Wairarapa) Aerial Hydrogeology Survey project, subject to the following conditions:
    a. The Applicant engages with Commercial Information to leverage learnings.
    b. Due diligence on local industry co-funders is completed.
    c. The results of the project are made publically available.
    d. Approval of the project plan and suppliers by the PDU.
11. It should be considered if there is a sufficient link between aerial mapping and the sustainable, productive use of water, as opposed to the Council's core obligations under the Resource Management Act 1991.

Costs and funding

12. The total cost of the project is $Commercial Information. A preliminary estimate of the project cost are as set out below:
    - Data preparation and planning: $Commercial Information
    - Project management and communication: $Commercial Information
    - Aerial survey data collection: $Commercial Information
    - Commercial Information data processing and inversion: $Commercial Information
    - Hydrogeological Commercial Information modelling: $Commercial Information
13. The co-funding arrangements are broken down as follows:
    - GWRC: $Commercial Information confirmed.
    - South Wairarapa District Council: $Commercial Informa confirmed.

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- Carterton District Council: $Commercial Informa confirmed.
- Masterton District Council: $Commercial Informatio confirmed.
- Local industry: $Commercial Information approved in principle and subject to due diligence by the PDU.

14. The GWRC is in an adequate financial position and the scale of the project is within the Council's capacity to manage effectively.

PDU assessment of the project

15. This section provides an overview of PDU's assessment against the PGF eligibility and assessment criteria.

Criteria	Rating (1✓ to 5✓)	Comment
Link with fund and government outcomes		
Creates permanent jobs	✓✓	Enabling jobs is an expected indirect benefit of this project.
Delivers benefit to the community	✓✓	Delivering benefits and increasing productivity and growth to the community is an expected indirect benefit of this project.
Increased utilisation and returns of Māori asset base	✓✓	Delivering benefits and increasing productivity and growth to the community is an expected indirect benefit of this project.
Enhanced sustainability of natural assets	✓✓✓	The project should provide data to enable substantially improved management of natural assets.
Mitigation of climate change	✓✓✓	The materially improved management of natural assets will make the Wairarapa region more resilient to the impacts of climate change.
Additionality		
Adding value by building	✓✓✓	Greater utilisation of water resources will create economic benefits across the region. Commercial Information

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Criteria	Rating (1✓ to 5✓)	Comment
on what is already there		Commercial Information
Acts as a catalyst for productivity potential in the region	✓✓✓✓	This project allows water to act as a catalyst and build on an existing natural resource. Water is a scare resource in a region that otherwise has the key components required for a successful, high value sustainable primary sector industry (e.g. the right climate and necessary downstream infrastructure, etc.).
Connected to regional stakeholders and framework		
Alignment with regional priorities	✓✓✓✓	This project is aligned with the region's identified needs for: • water supply resilience • regional economic development including supporting the productive capacity for its primary sector • generating increased long-term employment opportunities.
Support from local governance groups	✓✓	In the context of the Wairarapa regional water resource planning process (Whaitua), Commercial Information Mana whenua wish to see an acceleration of the timeframes for improvement and aerial mapping is a critical tool for achieving these aspirations.
Governance, risk management and project execution		
Robust project management and governance systems	✓✓✓✓	Governance and project management is sufficiently outlined.
Risk management approach	✓✓✓	The applicant has provided a comprehensive risk assessment. See Risk assessment section.
Future ownership / operational management	✓✓✓✓	Key risks and an appropriate approach to manage these are sufficiently outlined.

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Agency comments

Department of Conservation

16. DOC is supportive of this initiative because it is the least intrusive method of conducting a survey of underground water resources with the added benefits of time and cost savings by sharing the HBRC's technology.

17. In addition, data that could be gleaned from this technology would be extremely valuable for other agencies in making decisions on future land use. DOC would be supportive of this data being made available to the public sector for future use.

Te Puni Kōkiri

18. TPK is supportive of the application. We are pleased that the aspirations of mana whenua have been considered as part of the proposal, specifically that aerial mapping is critical for achieving their aspirations in relation to the Wairarapa regional water resource planning process.

Ministry for Primary Industries

19. MPI supports this application, subject to:

- Confirmation of technology proof of concept from a similar project with the Commercial Information
- Validation of linkages, visibility and complementary working arrangements with the other current Wairarapa water projects.
- Details of how the information will be used and accessed e.g. being publically available.
- Confirmation of all co-funding partner details and levels.
- Provision of project plans, key milestones, payment gates and timeframes.
- Pending the survey outcomes, details of regional water locations, intended uses, access, priority and cost.

20. The PDU considers that the technology has been proven through use overseas, and that the linkages between the other Wairarapa water projects are clear.

21. The PDU considers that the last four bullet points raised by MPI are adequately covered in the standard PDU processes and the proposed conditions set out above.

Risk assessment

22. Commercial Information

23. DIA provides the PDU with regular updates on local government bodies. Given the information obtained, the PDU has no concerns regarding the applicant.

24. The PDU has identified the following key risks and mitigations:

Type of risk	Risk description	Mitigations	Risk Rating L/M/H
Project	Project uses new technology – GWRC does not possess specific skillsets and experience with inversion procedures and interpretation of data.	Operational learnings from HBRC will be important throughout the project, as full data won't be available until after the project closes Commercial Information	Low

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		Commercial Informatio	
Consent	Necessary approvals may be required from landowners, stakeholders and local authorities.	HBRC are currently working through this for their project and learnings will be sought. GWRC will also assess further part of the planning.	Low
Funding	Co-funding is not available.	The majority of the co-funding from local authorities has been confirmed. The applicant asserts that $Commercial has been approved in principle by local industry. This will be subject to PDU due diligence. If full co-funding is not available, the scope can be reduced proportionately (i.e. less of the ground water areas scanned).	Medium