

Hon Chris Bishop – Minister for RMA Reform, Minister for Infrastructure, Minister of Housing, Minister of Transport

Hon Dr Shane Reti - Minister of Science, Innovation and Technology, Minister of Statistics

Hon Chris Penk - Minister for Land Information

Hon Penny Simmonds - Minister for the Environment

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Dear Ministers,

The purpose of this letter is twofold: firstly, it seeks to draw to your attention the problems an inadequate system for gathering environmental information is causing for good decision making; secondly, it recommends that you collectively initiate a work programme to develop a federated environmental information system.

I am writing to you collectively as this is a cross-portfolio issue relevant to all of the portfolios listed above (and indeed others across the Cabinet). Environmental information supports policy and decisions related to environmental management, resource management, climate mitigation and adaptation, conservation, state of the environment reporting, energy, transport, agriculture, forestry, science research and statistics. Despite its utility, investment in improving our information base is often an afterthought.

Addressing this now while you are reforming the resource management system, the science system, water services and the Environmental Reporting Act will help ensure the success of those policies. Environmental information is also critical to the effectiveness of actions to address natural hazards and climate adaptation. For example, the Government's National Adaptation Plan (NAP) makes explicit reference to the vital importance of better information.

The problem

The ability of central government, local government and the private sector to make good decisions quickly and cost efficiently is constantly hampered by either inadequate or inaccessible information. This is increasing costs for the private sector who need to provide information to support investments and regulatory compliance. As the Infrastructure

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Commission has pointed, in many cases the private sector is duplicating work others have done or paying for access to information that has already been funded by the taxpayer.

Similarly, officials and ministers need ready access to accurate and up-to-date information to help ensure that they have identified the correct problem, understand the risks and opportunities it throws up and can determine the best solution. The absence of information also prevents them from knowing whether or not a policy has been effective and delivered value for money. In short, poor information hampers informed decision making.

Improved environmental information will have benefits across the economy. We are, in many respects, a biological economy, yet we lack vital information about the environment on which those industries depend. Better information would also inform work on the growing risk that climate-related disasters pose to the country's assets. In the context of managing natural hazards, spatial planning that integrates different layers of information must include spatial natural hazard assessments. Recent events have made clear how important it is that high quality information is available to inform the location of new housing growth as well as to manage past developments now known to be in high-risk areas. Such information will help guide determining 'go', 'no-go' and 'proceed with caution' areas.

Improved environmental information will also have benefits across the environmental management system for both government and the private sector. Take the reform of the resource management system for example. To be able to set meaningful standards and environmental limits, one needs to know both what is currently happening and what might happen (using modelling and other forecasting tools).

Relying on the expanded use of national standards to reduce the need for resource consents as envisaged, requires underpinning information about the current state of the environment so that appropriate performance standards can be set. A world of permitted uses and rigorous ex post compliance and enforcement requires high-quality monitoring information if the private sector is to be confident about demonstrating compliance. The use of novel tools such as biodiversity credits and offsets will also require high quality information.

The problem is often framed as a lack of data with the proposed solution being to collect more data in more places. While there are undoubtedly significant gaps in our environmental datasets, there is still a huge amount of data held disparately across central and local government, research institutions (including the CRIs and universities) industry and communities. However, the information held by these organisations is often either unknown in the public arena or relatively inaccessible.

For example, huge amounts of information are held by both territorial authorities and regional councils. But that information is collected for different purposes, such as state of the environment monitoring, consent assessments, incident responses, and compliance monitoring. This information is neither stored in an integrated system nor it is made accessible due to privacy or commercial sensitivity concerns. The result is constant reinvention of the wheel and duplication. The transaction costs are large.



A possible solution

What is needed is the ability to easily and quickly draw together existing information from these disparate sources so that it can be used to support robust decision making. New information from consenting and monitoring needs to be able to be incorporated (ideally in near real time) to enable adaptive management. A system that can easily pull together information in this way will also be one that can swiftly identify gaps that can be filled as investment allows.

Social, health and socio-economic policy is well supported by such a system through the Integrated Data Infrastructure (IDI) led by Stats NZ. The IDI is used to ensure that the development of social, health and socio-economic policy is informed by a strong evidence base. It has created the ability to generate quantitative insights on the effectiveness of policy interventions, both in terms of policy design and policy monitoring and evaluation.¹ A similar concept is needed for environmental information and environmental investment.

The concept of the IDI provides a useful starting point, but there are a number of challenges with environmental information that mean the IDI is not the perfect model. The 'connecting node' of the IDI is the (anonymised) 'individual'. For environmental information, the connecting node will almost definitely be 'geospatial'. Data is collected at different spatial resolutions from single points to areas of varying sizes. Determining the appropriate resolution of spatial data will depend on its intended use.

A further difference is that most of the data that contributes to the IDI resides within government and is thus easier to share. Environmental data is held across government, commercial and non-government entities bringing with it challenges of access, sharing and ownership.

A **federated data system** structure as the organising principle could address many of these challenges. A federated system transparently maps multiple autonomous database systems into a single federated system. Crucially, each data source remains independent, with control of the data remaining with the host organisation. The constituent databases are interconnected by a series of consistent policies to create a uniform environment so that the member networks can share data and services.

Next steps

I believe the following steps are needed to lay the foundations of such a system. Given the cross-portfolio uses to which such a system will be put, decisions need to be taken at the level of the Cabinet.

I recommend that the **Cabinet provide an explicit mandate** to develop a federated environmental information system designed to draw on existing environmental information and provide a stronger basis for supporting robust decision making and more coherent investment decisions across portfolios.

¹ A more detailed discussion of how the IDI works and its benefits is provided in the attached note.



A work programme to implement the mandate should include:

- The appointment of a steering group to:
 - a) consider issues related to governance and who takes the lead in standing-up a federated environmental information system;
 - b) consider how issues around access, sharing, privacy, data sovereignty, and ownership of information might be addressed;
 - c) develop the investment and business cases for such a system; and
 - d) advise on how the system might be developed using a modular or pilot approach.

Given the diverse sources of environmental information that need to be brought together, the group's membership should be drawn from central government, regional and territorial government, the environmental research sector, iwi/Māori and the private sector. It does not need to be chaired by a central government representative.

• The designation of a lead central government agency to coordinate cross-agency advice to Ministers on the system and to lead the development of standards for environmental information using a modular approach. Contenders for 'lead agency' could be: the Ministry for the Environment, given its leadership and stewardship of the environmental management system; Stats NZ, as host to the Government's core data information expertise (and as leader of the IDI); or Land Information New Zealand, whose geospatial expertise will be central to organising environmental data.

Concluding comments

I urge you to resist the temptation to put reform of the environmental information system into an environmental reporting box. Environmental reporting is about monitoring and reporting on the current state of the environment and associated trends. Environmental information is both wider and more fundamental. It underpins much resource allocation in the economy, informs good regulatory decision making and allows us to evaluate whether we are making a difference and getting value for money across the environmental management system writ large.

This letter, and the attached note which provides more detail, is a precursor to a more substantial piece of work that I am currently working on. That work is investigating how existing and emerging technologies might help us more effectively and efficiently collect and analyse environmental data and, importantly, how that data can be made into environmental information that is accessible, usable and reusable. As my thinking develops, I should be able to offer more insights that will help as the Government progresses reform around environmental information.

This reform will cost money and take time to implement. In my opinion, it is an investment well worth making given the costs that the status quo currently imposes. Environmental information should be treated as an asset. It is 'infrastructure' that enables better decisions. We need to invest in it every bit as much as we need to invest in hard infrastructure.

It would be a mistake to believe that this is something that would be nice to have but can be left until later. Without it we will not realise some of the savings that have been promised. The recent



cost-benefit analysis of the proposed resource management reform undertaken by Castalia seems to assume that information exists without providing a sense of the costs of getting that information and the costs that inaccessible data impose on the current system. Those costs will be just as real under the proposed reforms as they are currently.

While the investment that is required is significant, it is one that can be sequenced over a period of years. I am conscious that the Government is fiscally constrained in the short run but simply facilitating the integration of the many disparate sources of existing information and making this information accessible through a federated system would be a huge step forward. Any investment in new information down the track would then likely be much better prioritised.

The Government currently has reforms of resource management, public research, natural hazard management and climate adaptation under way. Environmental information is vital to each of them. I urge you to tackle its management in parallel. There will not be a better opportunity.

Yours sincerely

Rt Hon Simon Upton

Parliamentary Commissioner for the Environment Te Kaitiaki Taiao a Te Whare Pāremata

Attachment: PCE Note: A federated system to improve environmental information

Cc: Hon Simon Watts, Minister of Climate Change, Minister of Local Government; Hon Andrew Hoggard, Associate Minister for the Environment; Simon Court, Parliamentary Under-Secretary to the Minister Responsible for RMA Reform and the Minister for Infrastructure