Response to "Measuring Up: Environmental Reporting – A Discussion Document" from the Royal Society of New Zealand

18th October

The Royal Society of New Zealand is pleased to have this opportunity to comment on the proposed Environmental Reporting Bill. One of the Society's key functions is to provide expert advice on important public issues to the Government and the community. As we stand on the boundary between the research community and the Government, we understand the importance of evidence in informing policy decisions and thus importance of environmental reporting.

Our key messages are:

1) That environmental reporting in New Zealand should be improved;
2) That environmental reporting should have a clearly defined purpose and value proposition;
3) That stronger links between environmental reporting and environmental policy are necessary; and
4) That the development of environmental policies should be an adaptive process and that the Ministry for the Environment should consider the use of an ecosystem services framework to co-ordinate this work.

New Zealand's environment is composed of habitats, communities and ecosystems that provide numerous contributions to ecological, social and economic factors, however the biophysical and socioeconomic indicators used to measure and quantify these benefits are limited and often inconsistent. The Society therefore agrees with the need to improve New Zealand's national environmental monitoring and highlights the recommendation made by the Land & Water Forum that:

> "It is essential to institute an active process of monitoring and reporting on both performance and outcomes of water management."

To gain the most benefit from improved environmental information, the value and purpose of that information must be made clear at the outset. The Ministry's discussion paper should fully outline the value proposition for this proposal. This would allow a discussion of how the proposed changes will help in meeting particular policy needs and address the overall question of how the environment is managed.

Useful examples to draw from can be found in the activities of the many other OECD nations that take a more formal approach to national state of the environment reporting. We submit that the Government should present a vision of the purpose of environmental reporting, recognising that the specific reporting will have local, regional, and national components. This vision should present a clear path linking decisions about environmental reporting with the value that reporting creates.

Environmental data is of value if it informs policy and management decisions. The Society agrees with the Auditor-General's recent finding that stronger links between monitoring and policy are

needed. The Auditor-General reported in the context of freshwater quality but the point made is a general one - understanding the effectiveness of natural resource governance is a pre-requisite to improving policies and planning. The effectiveness of natural resource management cannot be understood without relevant evidence.[1]

All natural resource management policies and plans should be considered as experiments where success cannot be taken for granted. Instead, collaboration with affected communities should be used to set targets, limits, and timeframes in a transparent manner. Progress towards those targets should be evaluated and those assessments should inform a regular review of decisions and management changes.

Informing adaptive environmental management within an ecosystem services framework

We submit that such a vision could use an ecosystem services approach as a co-ordinating framework. This would link environmental, economic, social and cultural values with the functioning of ecosystems to allow for the management of ecosystems within their natural limits. Such an approach is outlined in the Society's recent Emerging Issues paper on Ecosystem Services and in the "Quality Planning Guidance Notes: Operationalising Ecosystem Services" work carried out by Plant & Food for the Ministry of the Environment. The "Action plan for embedding an ecosystems approach" from the UK Department for Environment, Food and Rural Affairs is another example of this approach.[2]

(We emphasise that the value sets included within an ecosystem services framework should include social, environmental, and cultural values as well as more-easily measurable economic values.)

[1] Office of the Auditor-General "Managing freshwater quality: Challenges for regional councils", September 2011

[2] Defra, "Securing a healthy natural environment: An action plan for embedding an ecosystems approach", 2007

Response to specific questions:

1. Do you agree with the issues identified above? Have the main issues been defined accurately?

The Society agrees that the issues identified (lack of statutory obligation to require regular and independent state of the environment reporting and inconsistent regional state of the environment monitoring programmes) are substantial and well-defined issues.

2. Are there any other issues that have not been considered?

There are several other issues that should be considered: monitoring of regions beyond territorial authorities, the need for clear objectives in monitoring, and the gap between regionally-relevant data and nationally-relevant data.

Monitoring all of New Zealand

The discussion paper only discusses areas covered by regional councils and unitary authorities. These areas cover less than ten percent of the area where environmental data should be collected. The discussion about environmental reporting should be expanded to include both conservation land under Department of Conservation management and our vast Exclusive Economic Zone.

For the marine environment that New Zealand claims, there are no statutory bodies charged with or resourced to collect environmental data other than fisheries data beyond the twelve-mile limit from the coast. The issue for the oceans is not that there is inconsistent collection of data, it is that there is no collection of data.

What are we monitoring for?

Without clear objectives for a national state of the environment monitoring programme, it will be difficult to make judgements about what monitoring should or should not be carried out.

Putting in place the correct organisational structure for monitoring is only part of the problem. Hand in hand with that must go an effort to understand the value and purpose of the monitoring so that monitoring produces evidence that is relevant and useful for informing policy questions.

Ecosystem features are scale-dependent and so are bureaucracies – Locally-relevant data versus nationally-relevant data, strategic versus operational data

In a similar manner to the above issue, there is a difference between data that is relevant at a local level versus data that is relevant at a national level. This is a similar distinction between the different monitoring needs to inform strategic versus operational decisions. Local level monitoring will inevitably have more focus on informing operational decisions than will national decisions. For instance, decisions by central government around biosecurity may require answers to questions about whether our biosecurity capabilities are joined up, responsive and effective; about how to gain public buy-in to programmes despite the down-sides of those programmes; and about when to cut losses and stop programmes. In comparison, operational decisions by local government may require answers to questions about the efficacy of particular control tools; the applicability of those tools; and about comparisons of practice between regions.

The different focuses for decision-making involve different kinds of questions and thus are informed by different kinds of monitoring. If national analysis relies on local monitoring data that has been collected for local purposes, then this might not include the relevant data needed for such analysis.

Conversely, if regional authorities are to collect data for central government purposes, then this will often be additional data and should be funded as such. There are already existing shortfalls in funding environmental monitoring. Imposing national reporting requirements will exacerbate this problem.

3. What is the scale of the problem? Which is the bigger issue: the lack of statutory obligation requiring regular independent state of the environment reporting or inconsistent state of the environment monitoring?

Regional authorities are often well aware that there is inconsistent state of the environment reporting. Equally, there is a good deal of consistency. The inconsistency is not driven by a lack of will but by a lack of resources. The situation could be improved without further changes to legislation by creating a standard repository for information.

4. Do you agree with the proposed objectives that: It is clear who is responsible for regular state of the environment reporting; the role of state of the environment reporting is independent of Government; high quality environmental statistics are available to underpin state of the environment reporting and environmental policy-making.

Yes, with the caveat that “high quality environmental statistics” is a meaningless term unless there is a discussion of the purpose of those statistics. The goal should always be that statistics are “fit for purpose” and meaningful. That purpose and meaning need definition. One suggestion from the Society is that very often, management decisions hinge upon whether observed disturbances in ecosystems are known to be caused by human influences or by natural variation. The purpose of environmental statistics is often to allow such causal inferences to be made.

7. Is there an alternative option that has not been considered?

Rather than existing government bodies or CRIs/Universities, the reporting could be carried out by a new institution (for example, a Common Asset Trust) which would include multiple stakeholder perspectives including science to ensure "fittness for purpose" at multiple scales.

8. To what extent do the options address the identified problems?

Whichever organisation becomes responsible for environmental reporting, that organisation will require the expertise to carry out the duties placed upon it. This capability and capacity should be sufficiently resourced.

11. What are the pros and cons of the proposed Environment Act amendment?

Accessibility of data and reporting

There are two additional specifications that should be included in an RMA amendment: that data should be open and reporting should engage with the public.

Firstly, when there is scientific uncertainty and competing uses of finite resources then "more and better" information is a necessary but not sufficient approach to resolving impasses around the use of natural resources, as pointed out by Weber *et al* in their review of the scientific impasse around groundwater in Canterbury.[3] For instance, competing hydrology models for the Canterbury Plains are used as scientific support by both sides of the debate. One way to avoid such scientific impasses is through inclusive sharing of all information. The Society notes the mention in the discussion paper that environmental reporting will be covered by the New Zealand Government Open Access and Licensing framework. The Environment Act amendment should ensure that the reporting requirements specify that full, timely, and open access should be required to environmental data. This data access should be at as low a level of aggregation as possible. Beyond just access to data, the reporting should ensure that data and assumptions in models and decision support tools are made public, rather than being held as private and proprietary.

Secondly, all public bodies carrying out environmental monitoring should be required to report publicly and to act to ensure the usability of that monitoring. It is not enough to publicise the results of monitoring. Weber recommends that there "should be processes that link sound scientific analysis with effective public deliberation". For example, the use of environmental report cards has had great impact in the South East Queensland Healthy Waterways Programme[4] and should be considered in New Zealand.

12. Is five-yearly reporting an appropriate reporting timeframe? If not, what time period would you recommend?

In general, a five-year timescale is appropriate. However, ecosystem functions at a wide range timescales. There may always be a requirement for more rapid and responsive monitoring to inform particular issues. Hence some flexibility should be allowed for on the part of whichever organisation has responsibility for reporting. Similarly, for long-term issues of cumulative degradation, it will be important to present data in a historical context, potentially extending back generations. While a five-year reporting cycle may suit some issues, reports should provide more historical context than just the previous five years.

[3] Weber, E.P., et al, "Science, Society, and Water Resources in New Zealand: Recognising and Overcoming a Societal Impasse", 2011, Journal of Environmental Policy & Planning, 13:1, pp 49-69

[4] Bunn, S.E., et al, "Integration of science and monitoring of river ecosystem health to guide investments in catchment protection and rehabilitation", 2010, Freshwater Biology, 55:1, pp 223-240

13. What do you think about the proposed environmental domains that the Parliamentary Commissioner for the Environment should report on in the state of the environment report? What topic areas or requirements (if any) would you suggest?

The proposed environmental domains are sufficient, presuming that sufficient attention is given to liminal zones such as wetlands and coasts.

What is lacking is a framework for choosing which topics should be covered within those domains.

For instance, dark skies are needed by astronomers and light pollution affects species migration patterns, predator-prey relationships, and other functions of ecosystems. Should light pollution be measured and reported at a national scale? The proposal provides no way to answer such questions.

14. Outline any problems you perceive with the proposed RMA amendment?

The proposal requires regional authorities to act for national benefit. This change should be carried out in a collaborative fashion, with independent peer-review of the regulations and impositions upon regional authorities. The resulting work should be cognisant of the monitoring already occurring, utilise the extensive expertise present in regional councils, and attempt to build upon the existing valuable long-term data sets, such as for water quality in some regions. Similarly, close attention should be paid to previous work establishing integrated economic-environmental accounts such as EcoLink, the Headline Indicators of Progress to Sustainability, and others.

The issues raised in the Society's response to Question 11 (Accessibility of data and reporting) are also relevant here.

15. Which environmental domains (eg, fresh water, land, oceans) do you think should be prioritised for improvements in consistency?

As outlined in question 13, there needs to be a framework to allow such prioritisation to take place.

The Society proposes that the prioritisation should be informed by an ecosystem services approach to natural resource management, including the cultural values embodied in our indigenous species. For instance, invertebrates in terrestrial habitats contribute to ecological services such as recycling of nutrients, forming and maintaining soil, and other ecosystem functioning. Thus their biodiversity can be important factor to measure if the associated services are considered important.

The Society also notes that data for oceans is particularly sparse and non-representative. Degradation of the marine environment is cumulative and can be very slow, thus it is often not properly appreciated. Policy to reduce human impact on the oceans will need a thorough underpinning evidence base if it is to be effective.

16. Have we accurately reflected the high level costs and benefits arising from the proposals for an Environmental Reporting Bill? Please give reasons.

The cost of imposing these proposals should not be understated. New regulations on monitoring will most likely require not just more monitoring, but more quality assessment and more science to deliver the best value from that monitoring.

Additional Information

This response was produced by the Royal Society of New Zealand from a range of submissions from its members, and signed off by the Chair of the Academy. Any enquiries about this submission or others should be addressed to the Royal Society's Policy Analyst, Dr Jez Weston (Email: jez.weston@royalsociety.org.nz). Responses are published on the RSNZ website .

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