



Australian Government
Bureau of Meteorology

Bureau of Meteorology

Submission to the Productivity
Commission Inquiry into Data
Availability and Use

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Executive summary

The Bureau of Meteorology (the Bureau) welcomes this opportunity to provide a response to the draft report of Productivity Commission's inquiry into Data Availability and Use. The response is based on four fundamental matters that the Bureau considers the Commission could usefully address in the Final Report.

The matters the Bureau would like to raise in response to the draft report include the operational nature of the agency, the range of services offered in a tightening economic environment and the provision of access to end users. To provide quality environmental data and information to the public, in an operational capacity, requires the Bureau to value-add to data as a core function in the public interest, research, and commercial domains. The tightening economic environment necessitates the use of cost recovery and charging policies to meet delivery expectations of users with a sustainable approach. Ensuring ease of access to data is also a critical matter. The licensing regimes used to provide access should be considered further as the Bureau notes that one size fits all licensing approaches can significantly reduce the uptake of data by end-users.

Data in the Bureau of Meteorology

The Bureau notes the considerable and growing challenges it faces in the context of making useful data available to end-users. The issues arise from existing and expanding operational functions, increased user expectation, the costs associated with managing large quantities of data at speed, and decreasing funding availability for sustainable service delivery. The challenges apply to multiple draft recommendations; the Bureau has selected the following four to respond to as representative of the issues it faces, namely:

- 7.1 – Government agencies value add to data;
- 7.3 – Minimally processed public sector datasets being freely available;
- 9.5. – Establishment of the National Data Custodian (NDC); and,
- 9.6 – Accredited Release Authorities, specifically responsibilities.

Value adding and pricing decisions

The Bureau provides selected products and services free of charge to meet its public interest responsibilities under the remit of the *Meteorology Act 1955* and the *Water Regulations 2008*. However, it also provides some data on cost recovery terms and in certain cases, market value rates for tailored services and products. Flexibility in charging models enables the Bureau to invest in the quality and value of data provided, maintain capability critical to support data provision, and develop new products and capabilities that benefit the economy and public interest in the long-term.

Ease of access to data

The Bureau's original submission provides considerable detail on the Bureau's approach to maximising ease of access to data through flexibility in licensing that data to end users. There is a further point that should be made in light of the draft report. The licensing of data has a fundamental

influence on how easy it is to access that data and on the ultimate uptake and use of that data by end users.

The draft report makes a number of mentions of the use of Creative Commons licences for allowing open access to data. The Bureau notes that licences are a tool, and like any other tool, it is useful to have more than one available. Having the ability to use more than one open access licence will enable the Bureau to apply the most appropriate open access licence to each relevant dataset. Such an approach maximises the ability to ensure that end-users can obtain access to data in the way in which the end-user most wants access. In some circumstances, data can be made simultaneously available under more than one licence framework, which allows end-users choice.

The Bureau notes that the approach to open licensing taken in the United Kingdom, Canada and New Zealand (NZ) is instructive. Both the United Kingdom and Canada use their own open government licences and NZ government policy dictates a list of situations in which Creative Commons should not be used. The point that is made here is that while Creative Commons is useful in some situations, a focus on the use of that tool alone to permit open access will ultimately limit the datasets that will be made available on an open access basis. It is recommended that the final Report acknowledge the approach taken in international jurisdictions (as identified in more detail in the Bureau's original submission) to assist the Australian public sector in taking the conversations on open access licences forward.

Draft Recommendation 7.1

DRAFT RECOMMENDATION 7.1

Beyond achieving a 'fit for release' standard (Draft Recommendation 6.1), government agencies should only value add to data if there is an identified public interest purpose for the agency to undertake additional value adding, or:

- the agency can perform the value adding more efficiently than either any private sector entities or end users of the data; and
- users have a demonstrable willingness to pay for the value-added product; and
- the agency has the capability and capacity in-house or under existing contract; and
- the information technology upgrade risk is assessed and found to be small.

The Bureau participates in and directly benefits from regional, national and international data sharing initiatives and obligations. We would not be able to perform many of our functions without the data-sharing arrangements of the members of the World Meteorological Organisation (WMO), which include private, public and research organisations.

For public sector agencies, it is important to distinguish between agencies that have been set up expressly to value add to data and those that have not. As an operational agency of the federal government, the collection, collation and value adding of complex science-based data is the primary function of the Bureau. For example, Section 6 of the *Meteorology Act 1955 (Cth)* requires the Bureau to issue advice on meteorological matters (including extreme weather warnings) that can only be developed through the process of value adding to raw meteorological data. Furthermore, the Bureau is required to perform its functions in the public interest, the safety and security of individuals

and communities, and for the purposes of the Defence Force, navigation and shipping, civil aviation and for the purpose of assisting persons and authorities engaged in primary production, industry, trade and commerce.

Ultimately, without extensive value adding in order to meet these functions and purposes, the Bureau cannot meet these expectations. It is important that these requirements are expressly recognised.

In addition, to ensure the trust accorded its forecasts, warnings and advice, the provenance of data and the context of its use are critically important. Provision of certain data may be restricted by context, particularly in cases where specialist tools are required by end users to make sense of the content. This latter point is exactly where the Bureau adds value to the data it holds and disseminates as distinct from a policy-centric agency that performs minimal processing.

A specific example is the value-add and assurance of products and services that are of greatest use to end-users. Some of the processes for value-adding to data include consistency adjustments—for example, to account and adjust for the effect of the shade of a tree on an automated weather station. Understanding this context is crucial to making decisions when relying on observational data.

As such, the Bureau suggests that draft recommendation 7.1 is amended to remove doubt about whether such functions and purposes are in the public interest by expressly making legislative requirements an example of an identified public interest purpose.

The Bureau notes that in its experience, extensive value adding or the sort that the Bureau often needs to engage in would not meet the value add test criteria set out in draft recommendation 7.1, because of the resources and potential information technology upgrade risk required. The Bureau suggests that by drawing these test criteria narrowly as they currently are, opportunities for sensible and important value adding may be lost. An example of this is Numerical Weather Prediction wind forecasts, a self-contained product that is also an input for emergency management products.

Draft Recommendation 7.3

DRAFT RECOMMENDATION 7.3

Minimally processed public sector datasets should be made freely available or priced at marginal cost of release.

Where there is a demand and public interest rationale for value-added datasets, agencies should adopt a cost recovery pricing approach. Further, they should experiment with lower prices to gauge the price sensitivity of demand, with a view to sustaining lower prices if demand proves to be reasonably price sensitive.

The Bureau supports flexibility in charging mechanisms available to Commonwealth agencies to ensure that end-users are able to obtain datasets of interest and use.

One of the core functions of the Bureau is to capture, process, interpret and value-add to complex science-based and scientific data. The issue remains that data management, and in particular the high quality the Bureau delivers, is a cost that must be covered above current appropriations for project-based outputs. The Bureau releases almost 200 of its available data products in the public

interest. The products adhere to the functions defined as basic service in the *Meteorology Act 1955* that includes obligations to the World Meteorological Organisation and the International Maritime Organisation. Those may impose international licence restrictions and the intellectual property rights associated with third parties and their data will continue to restrict the provision of some data—freely or otherwise—irrespective of changes made to Australian legislation in support of data availability.

One of the challenges related to the consistent and accessible provision of data is the rapid pace of technological change, which affects all parts of the value-chain, from collection, storage and dissemination. The draft report alludes to the need to continuously upgrade technologies, but discounts this as a major concern. The Bureau would disagree, given the scale, scope and velocity of data it handles each day, and in perpetuity. To that end, provision of data ‘freely’ or at marginal cost does not recognise the need for continued investment to enable sustainable, quality data on which users can rely. The costs of keeping pace with technological change—and with user-expectations—typically have not been factored into agencies’ funding or budget models.

Moreover, there is a need for both continued investment in the form of platforms, storage and transmission networks and for the increased use of ‘as-a-service’ technologies. Typically, agencies receive funding for technological upgrades through one-off capital projects, usually through new policy proposals, and with ongoing operations expected to be factored into agencies’ existing budgets. That limits agencies abilities both to upgrade technologies enabling reliable, sustainable data provision and to use ‘as a service’ models, which require operational, not capital funding. Further, the contractual and pricing models underpinning ‘as a service’ provision can easily punish data provision—for example, storage costs may be low, but transmission and volume costs may be high.

Last, marginal pricing work well where there is a known, predictable, smooth (linear) demand. However, the digital economy privileges non-linear behaviours: a single app, unknown and unpredictable can exert sudden and dramatic pressure on data provisioning systems, and can disrupt an agencies’ systems much like a denial of service attack. Agencies must therefore invest to protect and harden their systems to ensure their own security, reliability and resilience—not of which can be assured through marginal cost funding based on existing funding assumptions.

A framework for Australia's data future

Draft Recommendation 9.5

DRAFT RECOMMENDATION 9.5

The Australian Government should establish an Office of the National Data Custodian, as a new function within the Government to have overall responsibility for the implementation of data management policy.

Specifically, the National Data Custodian (NDC) would have responsibility for broad oversight and monitoring of Australia's data system, recommending the designation of National Interest Datasets, and accrediting Release Authorities and trusted users within the reformed data system.

Draft Recommendation 9.6

DRAFT RECOMMENDATION 9.6

Selected Australian and state/territory government agencies should be accredited as Release Authorities by the National Data Custodian. In considering applications for accreditation, the National Data Custodian should consult a wide range of parties and ensure Accredited Release Authorities (ARAs) have sectoral expertise. The current model used by the National Statistical Service for appointing data linkage authorities should be considered in developing a model upon which to base this process.

ARAs will be responsible for:

- deciding (in consultation with initial data custodians) whether a dataset is available for public release or limited sharing with trusted users
- collating, curating and ensuring the timely updating of National Interest Datasets.

ARAs will also perform an important advisory role in regard to technical matters, both to government, and to the broader community of data custodians and data users.

The proposed Office of the National Data Collection (NDC), National Interest Data Sets (NIDS) and Accredited Release Authorities (ARAs) are all of considerable interest to the Bureau. The Bureau would be interested in contributing or participating in the formation of such bodies, designated data sets and frameworks and standards. It has particular interest in becoming an ARA, given its experience and the established need for it to disseminate critical information and value-added data through a wide range of channels to end-users.

- The Bureau has well-established processes for determining data availability for users, particularly with respect to conditional availability of data and license conditions.
- The Bureau has the practice, capability and infrastructure to deliver its products and services to external end-users across a range of channels.
- The Bureau has specific responsibilities for provision of data for the benefit of the global community (for which Australia receives direct benefits itself).
- It is worth noting that the *Water Act 2007 (Cth)*, which governs part of the role and activities of the Bureau, defines the provision of data as a formal role within the water industry value chain pursuant to Part 7, Division 2, Section 120 and Division 3, Section 125.

The previous submission from the Bureau highlighted the international agreements—and other specific conditions—that it is obligated to meet, and these circumstances and conditions (and other obligations from other agencies) need to be recognised in the governance arrangements for data.

The Bureau considers, not unnaturally, that it is well placed to be a model ARA in the domain of environmental information. A critical function of the Bureau is to disseminate complex, time-critical and client-focused scientific data to users, which implies a consistent application of conditions of use.