

Submission to the Productivity Commission on Information Request 1 in response to

3. The Commission's assessment approach.

The Commission's assessment approach intends to assess the effectiveness by gauging actions required to implement various elements of the Basin Plan, and water recovery and other targets, as proxies for the outcomes of the Basin Plan. The assessment approach is a linear logic approach, based on projected timelines and schedules, and it recognises that quantifying progress will be limited in scope. It therefore proposes to supplement this approach with a qualitative analysis of:

- policy instruments, their level of influence and objective, and whether they may conflict with other required objectives.
- a risk analysis of outcomes, objectives and targets, and uncertainty about impacts, communities and the environment and adaptive management settings
- institutional and governance arrangements, including lines of responsibility and accountability, assignment of functions, monitoring reporting and enforcement, and a separation of regulatory and policy-making functions
- consistency of implementation with stated policies and agreed methodologies, trade-offs between different water users, observed changes and policy flaws or barriers that were exposed that need to be addressed.

A number of issues are not addressed in this assessment approach:

- While the approach focusses on measurable outcomes when the Basin Plan is completed, it ignores the process of implementation and how to reach the stated objectives given the many assumptions, challenges and complexities of a multilevel system.
- While there is a clear need to account for quantifiable triple bottom line outcomes (including economic success), there are no proposed indicators to measure social and institutional factors influencing an integrated water resource management governance model.
- The qualitative analysis lists a number of issues to be examined, but gives no indication on their relationship, their relative influence, priority or weighting. No particular methods for analysis have been proposed, nor how and where these methods will be applied and how they need to be interpreted in the context of the Basin Plan and its relation to the Murray-Darling Basin system.
- Effective governance and institutional performance is assumed to deliver measurable economic, physical and ecological outcomes. This assumption is untestable without linking the social-institutional and biophysical capacity and understanding how they interact over decadal timeframes.

This submission proposes to use a diagnostic framework to link socio-institutional capacity with biophysical capacity of this complex, co-evolved system, to better integrate the approach and provide a way of measuring intended outcome of the Basin Plan (Bouckaert et al., *in press*). Firstly, the framework is used to distinguish context and external drivers from

the system to be governed and outcomes to be achieved. Secondly, it proposes eight diagnostic functional indicators in two system domains: social-institutional and biophysical. The diagnostic indicators are used to determine current capacity and targets by key stakeholders to produce sustainable, resilient outcomes.

The diagnostic indicators are grounded in organisational behaviour theory and social networks (Ostrom, 2007; Bowditch et al., 2008), and ecosystem structure, function and services (Turak et al., 2017). They share four interactive functions that exist between the socio-institutional and biophysical system domains that are listed below in Table 1 below.

Table 1. System functions and relevant domain indicators.

<i>System function</i>	<i>Socio-institutional</i>	<i>Biophysical</i>
Direction	Leadership	Material cycling
Connection	Collaboration	Water Flows
Composition	Institutional structure	Species diversity
Renewal	Learning	Species recruitment

The eight diagnostic indicators and their attributes are used to categorise, order and classify existing quantitative and qualitative indicators, such as those identified and agreed under the Basin Plan, together with indicators to be developed to address significant gaps, such as the need to better account for climate variability and change (Pittock, 2009).

This allows for integrating a number of indicators that at first seem incongruent and unrelated. A collective view is then sought to score the indicators for current capacity, and target capacity. The distance between current and target scores for each indicator provides a diagnostic profile which can be used to prioritise management actions and for balancing required governance and biophysical outcomes to achieve a healthy working river. Thirdly, this framework can be used at nested spatial scales, thereby reflecting the different ecological priorities and governance arrangements that exist at the local, catchment and Basin scales (McLoughlin & Thoms, 2015). Finally, a trajectory analysis is used to assess whether progress is made towards long term target objectives.

This framework also underscores the importance of this integrated assessment to deal with uncertainties of complex system behaviour, including the co-dependence of each of the functional indicators (co-dependence is defined as exerting enabling or constraining influences on each other, depending on their diagnostic constellation).

We believe that this diagnostic framework provides an assessment perspective that better reflects the complex system dynamics (Duit & Galaz, 2008) and enables accounting for assumptions based on incomplete knowledge, uncertainties of non-linear feedback loops (Ison et al., 2013). It will be an important complement to the [Commission's assessment approach](#) which will help better assess the implementation of the Basin Plan, leading to a more sustainable river basin.

The manuscript of Bouckaert et al. (in press) is attached.

References

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