

STAGE 1 REPORT: APPENDIX G

Review of Evaluative Process and Outputs from the Program Evaluation of the Long-term Intervention Monitoring (LTIM) and Environmental Water Knowledge and Research (EWKR) Projects for the Commonwealth Environmental Water Office (CEWO)

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My review will be organized into two parts (1. Evaluation process and Content of evaluation reports, and 2. Big picture synthesis) according to the questions given in my Terms of Reference and reproduced below.

EVALUATION PROCESS

Did the evaluation team have the skills and experience to do an outcome evaluation of the EWKR and LTIM projects?

The Evaluation Team was comprised of an outstanding group of reviewers (A. J. Boulton, P.E.D. Davies, B. T. Hart, A. Ladson and W. Robinson), backed by the expertise of Water's Edge Consulting and associates. This truly excellent, experienced and knowledgeable group of evaluators/reviewers was assembled by Water's Edge to structure and execute this review. The evaluators were experienced in river systems, monitoring, aquatic ecology, the Murray Darling River system, in particular, and the Murray Darling Basin Plan. They are distinguished, active scientists with impressive, international scholarly reputations.

Was the evaluation approach fit for purpose?

The review questions were generated by the evaluation team and Water's Edge, then carefully vetted and discussed by the full review team, and were found to be appropriate for the task. I agree. The task of reviewing this large and complicated project was very difficult, so this initial stage of the review was quite important and was well done in my opinion.

Broadly speaking, were the right questions asked?

Yes, "broadly speaking". The priority questions in 4 themes (vegetation, fish, water birds and food webs) were appropriate ones needing answers. But, see below.

Was anything missing from the evaluation process?

There were two major subjects that may have been missing from the review, water chemistry and social science. I say "may" because this review document is so massive that I might have missed the detailed assessment of these topics that I was looking for.

I looked for, but couldn't find detailed comments and discussion of water chemistry; including toxic metals (e.g. Cu, Pb), Selenium, Arsenic, Nitrogen, Phosphorus, Dissolved Organic Carbon and Na Cl (other than some general statements about salinity). The other topic was related to social sciences (e.g., integrated communication, group dynamics, building trust). I also didn't find these two topics addressed in the "right questions asked" or referred to by the evaluators.

These two topics are important for a full assessment of the system's environmental water management, and I was surprised by their absence.

CONTENT OF EVALUATION REPORTS.

Was sufficient evidence provided by evaluators in support of the evaluative judgments of the extent to which the objectives of the LTIM and EWKR projects were achieved?

The review team was evaluating a \$5A million/5 year (2014-2019) project to improve the science to support the environmental water management in the Murray Darling Basin. Given the massive and thoughtful response of this qualified review team, they obviously took the assignment extremely seriously.

Was sufficient evidence provided by evaluators in support of the evaluative judgments of how well the environmental outcomes of commonwealth environmental watering were demonstrated by the LTIM project?

This question was difficult to evaluate, but because of the experience and past efforts of the evaluators (e.g. Hart 2015, Hart and Doolan 2017), and extensive materials available to them, I was convinced that their judgments were based on valid information and experience.

Was sufficient evidence provided by evaluators in support of how well the EWKR project was able to demonstrate environmental outcomes from commonwealth environmental watering?

Same as LTIM response above and see below.

Comments on the judgments of the extent to which the projects were fit for purpose

As I understand it, the evaluation team was carefully selected, vetted and formed. Then, the entire team, including the team at Water's Edge Consulting, identified the Key Environmental Questions (KEQ), and developed the process and approach for the evaluation. As such, this process was "fit for purpose" in my opinion.

Do you have any other observations on the content of the evaluation reports?

The evaluators' reports provide a huge resource of information but are so massive that they are difficult to follow, to find relevant supporting information and to digest. Such a massive document is appropriate for a review such as this, but the reader ("client") needs help. Better integration of the principal findings, listing the findings clearly and suggestions for the future are crucial for communicating the result of the review and would be extremely helpful for implementation. I have not necessarily attempted to prioritize my comments below, but the evaluators should consider prioritizing some of their major findings and suggestions.

The Water's Edge Consulting team used the electronic tool NVivo to help the evaluators find information within the massive document and to keep the pieces together. Could this or something similar be provided with a tutorial to the client and other readers?

Also, see below.

BIG PICTURE SYNTHESIS:

Based on this evaluation are there key recommendations appropriate for CEWO as they move forward in their monitoring, evaluation and research program post 2020?

In my opinion, the considered and intelligent comments of the evaluators are appropriate for CEWO as they move forward in their monitoring, evaluation and research programs toward environmental water management in the Murray Darling Basin.

See some specific comments and suggestions below.

Are there any additional opportunities for improvements to support the CEWO's future monitoring, evaluation and research activities that have not been reported?

Enhanced, integrated communication within the project, with stakeholders and with the media is badly needed. This improvement will require active leadership and better transparency. I support the evaluators' recommendations to further develop a leadership team for the project, including a project manager and steering committee, keep data up-to-date and publically available, hold frequent reviews (high-level and detailed), seek and listen to reviewers during the course of the project (don't wait until the end), and keep the project at the system level (not piecemeal).

A fundamental component to the success of this CEWO project in the future is integration of the pieces of the project, integration of the questions driving the research and monitoring, integration of the data collected, integration of the diverse findings at the system level, integration of the reporting of findings. Who will do this integration and provide the leadership necessary to make it happen?

More detailed and extensive chemical monitoring should be done to prepare for future problems related to water quality. What are the details behind "Water quality KEQ 2.2.4 Micro level and "water quality" KEQ 2.4.6?

The availability of new technology and new environmental conditions (for example, the swiftness of the Covid-19 pandemic, climate changes including impact of wildfires, leading to "surprise" environmental conditions), all demand a monitoring system that is able to adjust quickly and efficiently.

How prepared and how nimble will this program(s) be in the future to pursue these adaptive monitoring challenges (e.g. Lindenmayer and Likens 2009). What planning is being done now to prepare for such eventualities? It is important to suggest more strongly and clearly a few examples of potential problems that might become serious within the Basin in the future (Who, When, Where, What, Why?).

OTHER IMPORTANT COMMENTS:

Because of the massive size of the review document, it is extremely difficult to work through it and to find the critical nuggets of advice from the evaluators. It is very important to add an Executive Summary and "findings guide" for this complicated document. The major findings from the evaluators should be organized and listed clearly in such a Summary (see comments above about prioritization). The current

summary table of recommendations (Table 1), found in the Stage 1 reports is a key document. Nevertheless, it is difficult to follow and should be improved for clarity and impact.

For example, Table 1 would profit greatly from reorganization, clearer headings, more detail, and indications as to where in the document the detailed supporting information can be found. There is no large heading for monitoring (who, what, when, where, and why) in the Table. Is it necessary to separate EWKR from LTIM in Table 1? And, if so, why? Why not just give the major recommendations from the overall review/evaluation?

Below are a few specific comments and questions relative to Table 1:

- Several of the Program element headings are vague or even misleading
- statement EWKR8 is probably important, but what does it mean in the context of Table 1?
- I strongly agree with LTIM13 (also add a social science review committee). There should be regular, scheduled meetings of the science and social science review committees (and with the Steering Committee and Project Manager).
- EWKR17 is redundant with EWKR 18. Combine them. Adding knowledge brokers will be very important for communication.
- LTIM1 is a critical recommendation. Highlight at the beginning.
- LTIM2, what is the meaning of “water quality”? What is included?
- EWKR4 how? Should call for or develop an action plan otherwise it is too easy to let slide. I would suggest an even stronger statement about engagement with First Nations.
- EWKR9 what risks?
- EWKR2 Could the evaluators give a few examples?
- EWKR19 same as LTIM1 - combine
- LTIM5 is very important. As I understand, the focus of the overall project is on the Basin Scale, but see LTIM4 below.
- LTIM 4: It is critical to sort out Basin scale and/or Selected Areas as the focus, particularly when planning for the future and unexpected events (see comments above).
- The LTIM evaluators included a list of acronyms – THANK YOU!
- statement LTIM7 is unclear
- EWKR6 This is overarching, place at top of Table. Largely based on open and frequent communication and trust.
- LTIM9: what does “model development” mean, particularly in a summary table like this?
- LTIM11 It is difficult to believe that this wasn’t the first thing done in 2014!
- LTIM3 no mention of safety and security of data storage against fire, vandalism, theft. This can be a major issue (see, Lindenmayer and Likens 2018). I agree that monitoring data need to be used and that good data management will be critical for effective use. Be clearer about to whom and by whom findings should be communicated. What are the major findings? What are the surprises? Mass deaths of Murray Cod should be reported first by CEWO, not on the front page of the Australian.

- Of 10 KEQs assessing merit, worth and significance of the EWKR project only one (How efficient was the collaborative process within the EWKR project?) was rated “Efficient”. Seven were rated “Moderately efficient and two were rated either “low impact” or “inefficient”. The same was true for the LTIM evaluation where of 15 items, 12 were “moderately effective”, 1 was effective and 2 were “inefficient/minimally effective”. It strikes me that this overall rating of the EWKR project is highly worrying for a project of this importance for Australia. Moreover, I think the consensus process used by the evaluators was reasonable and effective, and consensus is important in a major review like this. However, the more critical comments of the evaluators, which may be the most helpful for improving the project, are “buried” in Appendix B. In such a massive document, it would seem that a better way could/should be found to make this information more readily available and visible. Minority views may tend to get lost through this process. Maybe a different rating could be footnoted so as not to lose important information? Or, maybe the criticisms from this experienced group of evaluators could be collated and highlighted, not buried. How else can this information be known and made useful?
- The loss of information through the consensus process might eliminate information (more negative minority judgments) that otherwise could be useful to management and project improvement. Need to find some way to find this information and retrieve it, not overlook it.
- LTIM15 “adaptive management learnings”. I don’t know what this means. Adaptive management is a common goal, but one rarely achieved in environmental projects (Westgate et al. 2013). Because adaptive management is such an important goal in this project, it could be a major flaw. As the LTIM evaluators stated, “A major barrier to adaptive management was the effectiveness of the data management system. Issues with getting data into and out of the system, version control and QA/QC caused confusion and delay.” Such problems and more, generate no confidence and much frustration. It seems to me that this is a major concern and should be highlighted and elaborated in this review.
- There was good diversity of respondents to the stakeholder survey, but state and regional managers were very few. Is some statement needed from the evaluators about how satisfied they were with the number and diversity of responders? With the EWKR, a surprising number of respondents had neutral/negative sentiments across focal areas (>49% in all areas except Impact (45%) – Groups 2 and 3 (Figure 11)). Clearly, this is an area requiring much attention as the CEWO moves forward. Where are these important findings reported out and evaluated in the summary material?
- When communication and Reporting in Table 1 is not clear or visible, wouldn’t it be helpful to highlight (in special section) the stakeholders opportunities for improvement?
- It might have been (or be) most helpful to bring the EWKR and LTIM evaluators together to look for overarching reactions and suggestions that would characterize the overall review and be helpful to future CEWO efforts. The evaluators and Water’s Edge Consulting then might agree on some 10-20 major points that could be brought to a meeting with the CEWO leaders for discussion and review by the entire group.

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