

Northern Victoria Irrigation Renewal Project
Wetlands Short-listing Report



Advice from the
NVIRP Expert Review Panel
to the
Secretary of the Department of Sustainability &
Environment

11th August 2009

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1. INTRODUCTION

1.1 This Advice

This advice relates to the Wetland Short-listing Report.

1.2 Context

Although our knowledge of the water cycle across northern Victoria is far from complete, it is clear that several factors have recently contributed to creating a much drier landscape than the region has otherwise experienced in modern times. They include:

- on-farm improvements in water application and drainage generation;
- improvements in infrastructure and water delivery management;
- current extended drought conditions.

Climate change and further infrastructure and service modernisation, in particular roll-out of the Northern Victoria Irrigation Renewal Project (NVIRP), are likely to result in further loss of water in the landscape and in particular to the regional wetlands. Not all of this loss is detrimental. Removal of unseasonable incidental irrigation water to the environment can result in a more 'natural' hydrological regime.

1.3 Role of the Expert Review Panel

The Expert Review Panel (ERP) was appointed by the Northern Victoria Irrigation Renewal Project (NVIRP) and endorsed by the Minister for Environment and Climate Change to provide advice to NVIRP, the Minister for Water, and the Secretary, Department of Sustainability and Environment (DSE) in relation to the relevant conditions of the decision of the Minister for Planning that an Environmental Effects Statement (EES) is not required for the NVIRP.

Condition 2 of the decision determined that:

"NVIRP must appoint an Expert Review Panel, the membership and terms of reference of which are to be endorsed by the Minister for Environment and Climate Change, to provide advice on hydrological and related ecological changes due to the implementation of NVIRP".

The ERP was established in late June 2009 and met on several occasions since the beginning of July 2009 to review the matters required as set out in the conditions specified by the Minister for Planning in his decision regarding EES. Table 1 lists the documents that the ERP is required to review and for which it is engaged to provide advice at this time. Other documents and matters are scheduled for later consideration, and the ERP will, in due course, provide written advice on these.

Table 1: Documents for ERP Review

Condition	Document	Expert Review Panel role	Approval	Timing
3	Water Change Management Framework.	Review of draft NVIRP documentation and written advice to NVIRP and relevant agencies.	Minister for Water, following review and written advice from the Expert Review Panel and following consultation with the Minister for Environment and Climate Change.	Before operations of relevant works commences.
3	Environmental Commitments – WCMF	Final advice to Minister for Water to be made publicly available.		
3	Processes, methodologies and procedures – WCMF			
5	Short-listing Reports for waterways and wetlands.	Review of draft NVIRP documentation and written advice to NVIRP and relevant agencies. Final advice to Secretary, DSE to be made publicly available.	Secretary, DSE following advice from the Expert Review Panel.	Before operations of relevant works commences.
5	Environmental Watering Plans	Review of draft NVIRP documentation and written advice to NVIRP and relevant agencies. Final advice to Minister for Water to be made publicly available.	Minister for Water following advice from the Expert Review Panel.	Before operations of relevant works commences.

1.4 Purpose of the Wetlands Short-listing Report

The purpose of the Wetlands Short-listing Report is to identify valued wetland ecosystems that are potentially placed at risk by hydrological changes *resulting from the operation of NVIRP*. The Wetland Short-listing Report also identifies which wetlands require an Environmental Watering Plan (EWP) to be prepared. It includes a schedule for the development of EWPs, based on NVIRP’s program of works.

The starting point for this assessment is the preliminary list of wetlands, as given in Table 8 of the Water Change Management Framework (WCMF), which comprises those nominated in Attachment 1 (of the Minister’s Conditions) and those identified by a desk-top analysis (SKM, 2008). This list comprised wetlands identified as having high environmental values and being hydrologically connected to the irrigation system as well as wetlands where there was some uncertainty about the hydrological connection or environmental values.

The purpose of this short-listing report is therefore to establish the environmental values of each wetland, and to evaluate the likelihood of the environmental values being adversely affected by the NVIRP modernisation, by following the procedures and methods outlined in the WCMF. These require a site inspection, information collation and data analysis, consultation and informed opinion for each wetland. Details of the three-step process are given in Attachment C of the WCMF.

Expert Review Panel Advice on Wetlands Short-listing Report

The Wetlands Short-Listing Report and the analysis that it supports it were completed prior to the WCMF establishing clear guidelines for the process. As such, there are some inconsistencies between the report and the Framework.

1.5 Process for Expert Review Panel Review

Hydro Environmental was engaged by NVIRP to undertake the development of the Wetlands Short-listing Report and determine wetlands for which Environmental Watering Plans (EWPs) are recommended along with the associated timing of these EWPs. The report was reviewed (in draft form) by the Technical Advisory Committee (TAC) prior to the ERP's review. It is noted that this report was completed prior to the establishment of the WCMF and as such did not originally follow the process outlined in the now established WCMF. The short-listing was therefore, undertaken following a process agreed with the TAC.

A presentation was provided to the ERP on the Wetlands Short-listing Report in July 2009.

The ERP has commented on two drafts of the Wetlands Short-listing Report (Draft Version 4 and Draft Version 6) and has provided the Final Advice on the basis of the latter. This advice is submitted to the Secretary of the Department of Sustainability and Environment on the understanding that comments from the ERP regarding report structure, formatting and editorials will be thoroughly addressed in the Final Report which is to be submitted by NVIRP on the 11th August 2009, together with this advice.

1.6 Criteria Used by the Expert Review Panel

The ERP has structured its advice around three criteria:

- (i) completeness and adherence to the process given in the Water Change Management Framework
- (ii) adequacy of the technical assessment in determining:
 - a. the environmental values of the wetlands
 - b. incidental irrigation water and outfalls to the wetlands
 - c. likely environmental effects of NVIRP on the wetlands
- (iii) soundness and reliability of the conclusions and recommendations

2. ADVICE ON THE ADEQUACY OF REPORT

2.1 Adherence to the WCMF Process

It must be noted that the initial drafting of the Wetlands Short-listing Report, and therefore the desktop and field work supporting its preparation, took place before the establishment of the WCMF. Total detailed compliance with the WCMF is probably an unrealistic expectation at least in the current draft condition. In this light, then, it is noted that there was no requirement for a site inspection to validate the short-list based on environmental values, which were derived unchanged from the Desktop Assessment Report. From a practical perspective this is not considered necessary and the process followed is considered to be appropriate.

2.2 Adequacy of the Technical Assessment

The overall short-listing process is intended to identify wetlands for which an EWP will be prepared and for which mitigating water may be required. For a wetland to be short-listed it must satisfy two criteria:

1. It must be of high environmental value
2. The high environmental values must be potentially under threat from hydrological changes resulting from the operation of the modernised irrigation system for which NVIRP is responsible.

The Wetlands Short-listing Report is reliant on the environmental assessments carried out as part of the Desktop Assessment. The methods that were used in the Desktop Assessment have implications for this report because they predetermine what outcomes are possible. There was no mechanism for reviewing that within this report. From a practical perspective this is not considered necessary, unless relevant new information became available and warranted a view of the short-list, which is understood to be accommodated in the adaptive management approach inherent in the WCMF.

The total short-listing process subjected a list of 1,137 candidate wetlands to a sequence of tests (or filters) which resulted in a residual list of wetlands that appear to satisfy both criteria. Although, the Desktop Assessment is not subject to review by the ERP it is worth understanding the methods used and their implications. There are two areas of risk that, whilst not critical in the Wetlands Short-listing Report, need to be recognised. They are:

1. The filters were applied sequentially with environmental value being tested first. This meant, effectively, that 1,137 wetlands had to be assessed for potentially important ecological attributes. This resulted in an assessment procedure that is very dependent on reported sightings of threatened species (often without information on recruitment, feeding, persistence and an under-emphasis on non-charismatic organisms) as well as international conservation conventions (e.g. Ramsar). Clearly the wetlands that were maintained on the preliminary list are likely to have significant environmental value¹, and will be subjected to more rigorous assessment during the development of EWPs, but there is some risk that other valuable wetlands may remain unreported due to the environmental values targeted in the Desktop Assessment.
2. At each stage of the short-listing process 'validation' is restricted to those wetlands maintained from the previous short-listing process. In other words, validation tested the preceding processes for choosing a wetland but not those that resulted in rejection. Whilst this is quite reasonable in producing a manageable short-list that satisfies the two criteria, it should not be seen as a process of refinement based on repeated tests against the criteria. Again, wetlands that remain on the short-list are highly likely to satisfy the criteria but there is some risk that the process may miss others that also comply.

It is apparent that strong efforts have been made to minimise these risks despite the size of the task and limitations of time and resources. Further amelioration has been achieved by ensuring that some wetlands for which insufficient information existed but which appeared potentially to satisfy the criteria remained on the short-list. In addition, inter-jurisdictional workshops and

¹ Though note that other, more wide-ranging assessments (e.g. the Conservation of Freshwater Ecosystem Values Program in Tasmania) indicate that threatened species lists are poor indicators of conservation value (P.E.Davies pers com).

community consultation programs significantly reduced the chance that important and vulnerable wetlands would be missed by the process.

It is the opinion of the ERP that the technical assessment protocol was adequate and that continued flexibility within NVIRP's adaptive management approach provided in the WCMF is appropriate and should ensure that all appropriate wetlands are considered.

2.2.1 Environmental Values

The environmental values reported as part of the Wetlands Short-listing Project are drawn from the preceding Desktop Assessment, supported by existing environmental management plans in some instances. This was the direction provided to NVIRP and their consultants at the time of report development. As such, there is no additional environmental investigation (desktop or field-based) carried out as part of the preparation of the Wetlands Short-listing Report and therefore there is no specific assessment of environmental values in this review. It is recognised that further environmental assessment will form part of the preparation of EWPs for those wetlands that progress to that stage.

In view of the number of wetlands evaluated and allowing for the constraints imposed by time and resources, the values and parameters are sufficient to guide the selection of wetlands for further development of EWPs.

2.2.2 Incidental irrigation water and outfalls

The additional validation work, in the form of ground-truthing for 24 wetlands [23 identified in the Desktop Assessment plus one added later by NVIRP] was carried out by Department of Primary Industry. It included site visits, desk-top surveys of records, and consultation with appropriate regional people including technical staff of G-MW. Raw data are not presented in the report but the pro forma against which the data were collected and organised (Section 4.2, Wetlands Short-listing Report) should result in a sound assessment of surface water input to the wetlands.

For the most part the short-listing procedures are likely to lead to a reasonable assessment of the potential for NVIRP modernisation to affect the environmental values of individual wetlands. The use of hydrological records of a single season, 2004/05, as the base-line reference against which to assess the hydrological effects of NVIRP modernisation should be aligned with the Water Savings Protocol, once this is revised to incorporate procedures around the definition of mitigation water.

The short-listing project used data from the Desktop Assessment, surveys by DPI, DSE database, and consultation with G-MW operations staff. This appears to be a very thorough approach and should yield a strong foundation for the subsequent assessment of hydrological dependency on incidental irrigation water.

2.2.3 Likely environmental effects of NVIRP

The principal finding of this short-listing process is that 10 of the 24 high value wetlands considered are highly likely to be affected by modernisation, and that all 10 will require an EWP. These ten wetlands are in the western part of the GMID, five in the Torrumbarry IA and five in the Pyramid Boort IA.

To date hydrological short-listing appears to be based exclusively on changes to channel outfall flows. It is likely that, in the short-term, this is the main form of response to modernisation activities planned for NVIRP Stage 1. As the modernisation progresses, however, and particularly as NVIRP Stage 2 takes effect, other relevant sources of water for wetlands from the irrigation system are likely to become more significant. These might include seepage from channels, drainage from irrigated agriculture, and groundwater, some or all of which may be affected by modernisation of channels, other infrastructure development, and spatial changes in irrigation distribution across the region.

A further study is needed to assess the potential significance (if any) of these water sources to high-value wetlands and the effect of NVIRP modernisation on them. In the short-term the proposed Groundwater Assessment Report will identify sites at which channel seepage may play a significant role in water supply. It is assumed that, these will then be subject to a similar short-listing process to identify wetlands for development of EWPs. The flexible approach adopted by NVIRP as part of an adaptive management framework is appropriate to ensure the inclusion of other significant wetlands should they be threatened by future modernisation developments.

2.3 Soundness and Reliability of Outcomes and Conclusions

Given the variety and number of wetlands in the region and the challenging time constraints, the Wetlands Short-listing Report concludes a comprehensive assessment process and provides a well-chosen list of wetlands for further attention. The ERP is confident that the ten wetlands targeted for an EWP are indeed appropriate candidates for mitigation water, and that the three wetlands requiring an Interim EWP have been diligently selected.

The ERP notes that to date, the identification of wetlands requiring preliminary assessment for EWPs has been a conservative (precautionary) approach. For example wetlands for which insufficient information was available have remained on the short-list until appropriate data were gathered. The large number of wetlands to be processed led to fairly limited environmental assessment but this was ameliorated by workshops and consultation amongst people with technical and local knowledge. Whilst further study may bring to light other wetlands with special ecological values in the future, it appears that current knowledge has been used well and that the current list of wetlands of high environmental value is appropriate.

In addition, the ERP notes that to date the assessment of flow characteristics at risk from NVIRP modernisation has been limited to channel outfalls (overflow or leakage). At the current stage of NVIRP implementation this is a reasonable approach but future NVIRP-related development may influence other aspects of inflow to wetlands. The proposed Groundwater Assessment Report and the adaptation of the short-list after this process will support the continual improvement process and reduce these risks. Through the life of the NVIRP program of modernisation, a flexible approach, supported by appropriate monitoring, should be maintained, particularly with regard to the (78) wetlands identified as having significant environmental values within the Desktop Assessment.

3. CONCLUDING ADVICE

The work reported in the Wetlands Short-listing Report has identified wetlands that may need protection from the effects of NVIRP modernisation in the short-term. Aspects of the short-listing process may be further applied in the future either in response to adverse monitoring results or where NVIRP modernisation works potentially threaten water sources other than channel outfalls supporting valued wetlands. A flexible approach to this will be needed.

The short-listing process produced a robust list of wetlands for which Environmental Watering Plans are to be produced.

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