

WARRUMBUNGLE SHIRE COUNCIL

Ordinary Meeting – 17 October 2019

Item 8 Raising Timor Dam Wall Feasibility Study and Dam Safety Upgrade Requirements

Division:	Executive Services
Management Area:	Warrumbungle Water
Author:	Manager Warrumbungle Water – Cornelia Wiebels
CSP Key Focus Area:	Public Infrastructure and Services
Priority:	PI7 appropriate planning is needed to ensure the ongoing security of energy and clean water supplies to communities within the shire PI2 The long-term wellbeing of our communities is supported by ongoing provision of high quality health and aged care, education, policing and public safety, child, youth and family support, environmental protection and land management.

Reason for Report

The purpose of this report is to

- make a recommendation to Council as to if to proceed with a dam raising project or not.
- inform Council of safety upgrade requirements of Timor Dam, independent of the dam raising, and the associated cost.

Background

The Raising Timor Dam Wall Feasibility Study project was awarded funding in August 2015 through Infrastructure NSW as part of the Water Security for Regions Program. The project scope included various studies. Meanwhile, the scope has been delivered and comprised the production of the following reports/documents:

- Site Survey, March 2016
- WHS, Security and Access Audit, June 2016
- Timor Dam Mechanical Equipment - Condition Assessment and Upgrade Recommendations, December 2016
- Dambreak and Consequence Assessment, November 2017
- Seismic Hazard Assessment, February 2018
- Geotechnical Investigations, May 2018
- Hydrogeological Study, August 2018
- Concept Design Report, November 2018; **Attachment 1**
- Finite Element Analysis, February 2019
- Yield Study Report August 2017; this was updated in February 2019 after the installation of new bores and as part of the IWCM (Integrated Water Cycle Management) process
- Preliminary Environmental Assessment and Project Plan, March 2019; **Attachment 2**
- Updated Dam Safety Emergency Plan, June 2019
- Camera inspections of the gravity feed main, June 2016

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It is a requirement of the Dam Safety Committee (DSC) that a Dam Surveillance Report is prepared every 5 years. Council's last safety inspection was performed in November 2015 and a report issued in February 2016.

Issues

Additional water security through new bores

The ongoing drought resulted in the installation of seven (7) additional production bores, improving Coonabarabran's water security considerably, even though the issue around sufficient groundwater allocation remains unresolved at this stage.

Environmental/riparian releases – Current requirements and increased future requirements with raised dam

Raising Timor Dam, to increase town water security, would result in increased environmental release requirements. The updated yield study showed that these expected environmental releases will offset the yield benefit from increased storage. This will result in a reduced yield when raising the dam wall by 3m compared to the scenario of not raising the dam and current release requirements (**Attachment 3**).

Releases have not been made in the past and are not made at present. This constitutes a non-compliance with the approval conditions as part of the water access licence and is due to multiple factors such as non-automated release valve operation, WHS issues with accessing the valve, lack of inflow weir/inflow measurement. The current water access licence requires to release of at least 15 L/s at all times or alternatively the amount of the inflow into the dam should the inflow be less than 15 L/s. Another licence condition stipulates that

"If and when called upon by the Department of sustainable Natural Resources to do so, the licensee shall construct to the satisfaction of the said Department in respect of location, form, type and construction, a measuring weir or weirs upstream of the water stored by the dam and shall continuously maintain such weir or weirs in good condition for the measurement of the flows referred to in conditions (3) and (4)."

The future release conditions assumed in the yield study were based on rules suggested by the Department of Planning, Industry and Environment (DPIE) – Water at the time of yield modelling. Representatives of DPIE Water have advised Council that raising a dam wall would attract conditions that would nowadays apply to building a new dam, which would be stricter compared to conditions that applied to a dam built in the 1960s.

Dam safety requirements

The latest Dam Surveillance Report contains a list of fifteen (15) recommendations that are required to be carried out to ensure the continuing satisfactory performance and future integrity of the dam and appurtenant works (**Attachment 4**). Many of the recommendations were intended to be addressed as part of the Raising Timor Dam Upgrade project.

Following the completion of the Concept Design Report, Public Works Advisory prepared an action list (**Attachment 5**) – including associated estimated cost – that is required to be implemented to comply with current WHS and DSC requirements. The list is prioritised with Priorities 1 and 2 required to be initiated within 6 months and 2 years respectively.

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Following the submission of the last Dam Surveillance Report, the DCS has written to Council in May 2016, requesting that a particular list of nine (9) items be appropriately addresses (*Attachment 6*); four (4) of these item remain unaddressed to date.

Conclusion

Council has not drawn water from Timor Dam since May 2018 and has drawn water from the eleven (four existing plus seven new bores) since May 2018. Council has at times drawn water solely from the bores and has been able to sustain a basic water supply during these times. No water was drawn, except for a short period, from the Castlereagh River at Poundyard Weir from January 2019 to present due several reasons, including no flow over the V-notch, effluent contamination and structural issues with the filter at the Water Treatment Plant.

It is believed that once rainfall conditions are more 'normal' and with changed operating rules for drawing water from the available sources the use of the Timor Dam will be sufficient for the Coonabarabran township into the foreseeable future.

In addition the added cost of increasing the Dam size will place an unnecessary financial burden on the water users of the Warrumbungle Shire.

Options

Options on raising Timor Dam include:

- Seek funding for raising Timor Dam, on the grounds of required additional water security; the updated yield study shows that this is likely to result in a decrease in yield due to increased environmental release requirements
- Not to proceed with the dam raising project, on the grounds of additional water security being provided by the new bores

Options on upgrading/operating Timor Dam in line with WHS/DSC requirements include:

- Pursue available funding options
- Include required amounts in Council's capital and operational budgets

Financial Considerations

The funding amount for 'Raising Timor Dam Wall feasibility Study' was \$599,860 including a Council contribution of \$87,620 (15%).

Installing the new bores attracted a State Government contribution of \$1.7M, with an allocated Council contribution of \$325,000 (16%).

Raising Timor Dam was estimated to cost \$8M (*Attachment 1*); additional expenditure of up to \$7M can be incurred due to environmental studies/assessments/approvals and the construction of a fish passage or an appropriate off-set (*Attachment 2*), potentially bringing the total cost up to approx. \$15M.

The cost for the fish passage is indicative; a more confident cost estimate can be determined by commencing negotiations with DPIE Fisheries in relation to the raising the dam wall, should Council decide to proceed with this.

Upgrading and operating Timor Dam to comply with Dam Safety requirements would cost approx. \$2.25M in capital cost and \$48,300 in additional operational cost annually (*Attachment 5*).

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Funding to address shortfalls in meeting dam safety requirements is currently not available.

Attachments

Attachment 1 – Raising Timor Dam Concept Design Report, November 2018

Attachment 2 – Raising Timor Dam Preliminary Environmental Assessment and Project Plan, March 2019

Attachment 3 – Extract from the presentation on the IWCM Issue Paper at the Project Reference Group meeting, November 2018

Attachment 4 – Timor Dam Surveillance Report, February 2016

Attachment 5 – Timor Dam Upgrade Recommendations and Cost, July 2019

Attachment 6 – Dam Safety Committee Letter, May 2016

RECOMMENDATION

That Council:

1. Notes this report on the Raising Timor Dam Wall Feasibility Study and Dam Safety Upgrade Requirements.
2. Does not proceed with raising Timor Dam.
3. Pursues funding options as they become available to upgrade Timor Dam in accordance with WHS and Dam Safety Committee requirements.
4. Starts budgeting for required safety upgrades and activities in its capital and operational budgets.