

Theodore Channel Systems Local Management Arrangements
Emerald Channel Systems Local Management Arrangements

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Australian Government's Agricultural Competitiveness Green Paper

On behalf of the Theodore and Emerald Local Management Arrangements (LMA) Interim Boards, we would like to provide the Australian Government with a formal submission on the *Agricultural Competitiveness Green Paper* focussing specifically on the section titled *Water and Natural Resource Management*.

On 7 July 2012, the Queensland government initiated an investigation into the potential for local management arrangements or LMA for Queensland's eight irrigation distribution schemes which are currently managed by the government-owned corporation, SunWater. The Theodore and Emerald LMA Interim Boards were formed for the Theodore and Emerald schemes in July 2013, and were tasked with submitting a business proposal to the Queensland government that demonstrate how the schemes could be locally run as viable businesses.

It is expected that the Queensland Government will make decisions on the recommendations made by the Independent Chair Leith Bouilly on all Queensland Schemes before the end of 2014. This will be accompanied by the release of the public recommendations and report.

Note that at this point, both the Theodore and Emerald LMA Interim Boards have an advisory capacity only and are not legal entities.

Our submission is made in the context of future Local Management Entities (LME) which potentially will be the owner and operator responsible for the delivery of water entitlements to supplemented surface irrigators and stock and domestic users within the Theodore Distribution System within Dawson River Water Supply Scheme, and the Emerald Distribution Scheme within the Nogoa-Mackenzie Water Supply Scheme.

We understand that the Australian Government's *Agricultural Competitiveness Green Paper*, and the regional initiative *Growing Central Queensland* seek to assess how agricultural investment can be effectively linked to major water infrastructure development and provide sustainable agribusiness opportunities for the region.

Should LMA proceed, separation payments will be negotiated by the Scheme Boards with the Queensland Government. It is very clear that these will comprise at most, only the essential investment required to ensure the distribution assets operate at the current service levels. Government has provided direction that there is no portion of the separation payment which may

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include any uplift on service, or improvement to delivery and efficiency of the irrigation infrastructure.

Both Schemes have done extensive work to model how the Scheme's assets can be modified, and modernised to increase Gross Value of Production (GVP) from the current hectares of irrigation and allow full use of the irrigation allocation, securing processing infrastructure servicing the Central Highlands and Dawson and Callide Valleys. With the implementation of LMA the LMEs for both schemes are committed to implement their scheme development plans.

We recommend the implementation of a similar program to the Australian Government Sustainable Rural Water Use and Infrastructure Program which would provide grant funding to fully optimise the two Irrigation Schemes which underpin irrigated agriculture and associated infrastructure in Central Queensland. Specific examples include:

Automation of distribution assets

The Theodore LMA Board goal is to move the system to full automation to maximise efficiencies that can be achieved in regard to water and energy use. There is no working automation on the current system. Emerald LMA Board seeks to improve on the partial Total Channel Control (TCC) automation system operating on the Selma Channel, and implement a similar system on the Weemah Channel. Automation has considerable benefits for both Irrigation Schemes through prompt and accurate delivery, reduced staffing costs, improved safety, significant environmental outcomes, and the ability to accurately measure performance of all assets.

Members of both Interim Boards visited the Coleambally Irrigation Scheme, NSW, and identified that TCC systems could work well and deliver significant operational savings for Theodore and Emerald. Coleambally experienced a significant increase in delivery efficiency over five years since its inception, from 57% in 2007–08 to 92% in 2011–12 (National Water Commission). Coleambally is one of a number of Murray Darling based Schemes that have received significant Australian Government grant assistance to pursue modernisation. This assistance has ensured it will remain a viable enterprise over the long term, with limited risk of financial, operational or other significant failure.

Metering

Both Emerald and Theodore Scheme currently rely on dethridge meter wheels to meter customer water use. While these comply with current Queensland Government policies on non-urban metering standards they do not meet the requirements of the National Framework for Non-Urban Water Metering. To move to compliance with the National Framework would incur significant cost; these costs have not been included in the scope of separation payment negotiations and would require significant capital investment. (There are 190 offtakes in the Theodore Distribution System and 237 offtakes in the Emerald Distribution System.)

As identified in previously published modernisation reports (GHD 2001; MWH 2012), the Theodore Irrigation Scheme does not measure:

- Uncontrolled losses to the system (seepage losses from earthen channels, evaporation); and
- Operational losses (unmetered use, channel overflows, leakage from rising mains).

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The Emerald Irrigation Scheme currently measures water at the Parshall Flume, and deducts customer usage to estimate losses. Similarly this Scheme is unable to distinguish between uncontrolled and operational losses.

The combination of metering and TCC systems would allow both Schemes to accurately identify, measure and prevent distribution losses, making this water available for productive use.

Moving towards compliance with the National Framework would provide opportunities to ensure accurate water delivery, and implement telemetry which would allow infrastructure assets to be subject to advanced analysis for system wide monitoring and optimisation.

Channel and other System Improvements

The Theodore Channel System was originally designed and built in the 1920s with expansion of the area in the 1950s. Since its construction, changes to crop types, irrigation patterns, licencing conditions and planned infrastructure have resulted in the system being operated very differently from its original design criteria (GHD 2001). Accordingly, much of the critical infrastructure's operational parameters have changed so significantly that they are incapable of being operated as required, or at their best efficiency point.

The Nogoa-Mackenzie Water Supply Scheme was established in 1968 to meet agricultural and mining developments, and the water requirements of associated urban communities in Central Queensland. Water is diverted from Fairbairn Dam to two channel systems to customers via a network of mostly open-earth channels.

As an example, Emerald's Selma Channel operates at over-design capacity (770 ML per day) when full design capacity was 660 ML per day. Similarly to Theodore, this has resulted from change in crop types, irrigation patterns and farm management over time resulting in the critical infrastructure operation parameters being operated well in excess of design. Lining the channels would improve the flow rate which would reduce losses by up to 5% in certain sections of the channel. This would also improve the viability of those properties in the Emerald Irrigation Scheme affected by seepage from channels.

GHD (2001) in their assessment of distribution efficiency found that the Theodore channel systems were typically under capacity for delivery of equivalent daily allocations and that capacity sharing (rationing) was required during periods of peak demand. Restrictions also are applied on a peak flow share basis in the Emerald system. Water stress at peak demand incurs significant yield losses. For example Cotton at peak flower will loss 18.8 kg/ha per day of Lint under water stress. Corn suffers major yield losses under water stress at peak demand of around 6% of yield per day. Looking at a 15 t/ha yield expectation this equates to 0.9 t/ha per day of stress.

The Theodore Interim Board has also identified that significant efficiencies could be made by installing pipe to deliver stock and domestic users as an alternative to the open channel network. To supply these customers, it requires six times the amount of their total allocations to wet up channels, plus significant distribution losses.

Improvements to critical channel systems would provide immediate and significant increases to the Gross Value of Production from the Theodore and Emerald region.

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Further development of irrigation area (Theodore Irrigation Scheme)

With the introduction of beneficial water (CSG) to the Dawson Valley Supplemented Scheme, the availability of additional water provides significant opportunity for expansion of irrigated areas both along the Dawson River and adjacent to the Theodore Channel System. Dawson Ag Consulting (2014) has identified areas of suitable soil and topography which could be developed and supplied via the Scheme should the system capacity be upgraded to meet current allocation demand. Three main areas were identified; these could be irrigated by flood irrigation and/or by centre pivots or lateral move irrigation. All areas would require a pump station to lift water to the high point where it could be gravity fed. The Theodore Interim Board identified this was an opportunity for the Scheme but that improvements to the existing infrastructure were of highest priority.

Direct Cost Benefits from Investment into Emerald and Theodore Irrigation Schemes

Current GVP produced by each Scheme is estimated to be \$9.4 million per annum for Theodore and \$132 million per annum for Emerald. This represents 19% of all crop production for the Banana LGA (total crop GVP for Banana Shire \$48.8 million ABS 05/06) and 29% of the Central Highlands LGA (total crop GVP for Central Highlands \$449.6 million QFF 2012).

Theodore commissioned Dawson Ag to calculate the increase in GVP from optimising the existing 2800ha of irrigation with modern and efficient distribution infrastructure. The conservative assessment was that GVP would increase from \$9.4 million to \$14.7 million, up 56% on current value. It would allow full use of Beneficial (treated CSG) Water in the Dawson supplemented system, and importantly, allow two crops to be grown each year in rotation in comparison to only one as is current practice.

The Emerald Interim Board also believes that the improvements listed in this submission will provide significant improvements to the GVP from the Emerald Scheme.

While we broadly support the development of and investment in new agricultural precincts as described in the Australian Government *Agricultural Competitiveness Green Paper*, the opportunities for investment listed above would provide extremely effective return on capital when compared with developing new country for irrigation. There are few or no environmental, economic or social risks from investing in these established irrigation areas which underpin all cropping activity and infrastructure in Central Queensland.

The Australian Government has provided significant investment to modernise irrigation distribution schemes over the last decade, particularly through the successful NSW Irrigated Farm Modernisation Project, and the Private Irrigation Infrastructure Operators Program.

Should the Queensland distribution schemes be privatised as locally managed corporate entities, and divested from the Government Owned Corporation SunWater, this would allow funds to be invested to on-ground works in Emerald and Theodore, guaranteeing direct economic benefits to the Central Queensland region. Both Boards would welcome the opportunity to tender for a similar program as the Private Irrigation Infrastructure Operators Program.

We have also provided this letter as part of a formal submission to the Growing Central Queensland initiative. We believe that improving our existing infrastructure, as per the examples listed, fully meets all Principles for Commonwealth involvement in water infrastructure projects, as listed in the

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Green Paper: Figure 19, page 75. These activities are in the national interest, specifically because they will deliver economic and social benefits, and broader public benefits.

Please contact us if you would like any further information.

Yours sincerely



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