

On-Farm Irrigation Efficiency Program (OFIEP) and Private Irrigation Infrastructure Operator's Program (PIIOP) in NSW

Technical Review of high-value
projects

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Contents

1	The Review Conducted	1
1.1	Role of the review team.....	1
1.2	This report	1
1.3	Water savings	2
1.4	Key findings related to project delivery.....	3

Tables

Table 1-1	Water savings	2
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1 The Review Conducted

During October, November and December 2019 the Aurecon Team reviewed on-site, 16 high-value projects delivered by landowners who had participated in the Private Irrigation Infrastructure Operators Program (PIIOP) in New South Wales and the On-Farm Irrigation Efficiency Program (OFIEP). Almost \$68m in Commonwealth funded on-farm works were completed to recover water for the environment and to improve irrigation water use efficiency. The works reviewed were conducted on privately owned irrigation farms located in the NSW Murray Valley, the Murrumbidgee Valley, the Macquarie Valley and the Victorian Goulburn Valley.

These works were funded by the Commonwealth in exchange for both water entitlements and completed civil works projects that countered the on-farm impacts of providing the water offered by providing extra funding for lasting and improved on-farm water savings. The individual project review reports have been provided to the Commonwealth by Aurecon as each review has been completed.

1.1 Role of the review team

The purpose of the review was to consider through a review for each project, including interviews on-site with participants, the works delivered, potential for water savings and participant experience in light of:

- Project proposals and works agreements
- Proposed water savings and water transferred
- Meeting program eligibility criteria
- Delivery processes including inception, delivery and variations
- Project outcomes for participants, and their willingness to participate in similar initiatives in future.

1.2 This report

This short summary report did not form part of the original project delivery which focussed on the individual farm reports for the Commonwealth Department of Agriculture which have now been submitted. This summary report provides a brief overview of observations made when conducting on-farm reviews of project works.

The program reviewed 16 on-farm works projects including those from:

OFIEP: This program supports modernisation of the on-farm irrigation infrastructure within the southern parts of Murray-Darling Basin, to allow allocation of more water to the environment. This is achieved via water-saving technologies and measures such as replacement or upgrading the irrigation infrastructure to improve the irrigation efficiency, improving the farm layout or revising the design of the irrigation system, implementation of surface or sub-surface drip systems and overhead spray systems and the required ancillary equipment.

PIIOP: The focus of this program is on the improvement of the efficiency of water use and management controls for private irrigation networks in NSW. For irrigation infrastructure providers it includes projects for upgrading the main supply canals, the secondary and tertiary supply. At an on-farm level it included modernisation of farm irrigation systems including upgrading supply and recycled water channels, investing in higher-flow irrigation systems, installing more efficient pumps, installing pressurised pipe systems (and associated pumps, filters and under-tree drip systems), implementation of channel control systems and construction of secure stock and domestic water delivery systems.

1.3 Water savings

Total water savings proposed in Table 1-1 and water entitlements transferred under the 16 projects reviewed.

Table 1-1 Water savings

Valley	Volume of water savings proposed (ML) through project delivery	Volume of water transferred (ML) to the Commonwealth.
OFIEP		
NSW Murray	970	835
NSW Murrumbidgee	29,277	16,211
NSW Murrumbidgee (MI)	815	756
Vic Goulburn (GMID)	747	396
Vic Murray	418	330
Sub-total	32,227	18,528
NSW PIIOP		
NSW Macquarie	521	521
NSW Murrumbidgee (MI)	8,679	6,092
Sub-total	9,200	6,613
Total	41,427	25,141

The review team established that the 16 projects involved activities deemed to provide water savings of more than 40,000 ML and the transfer of just over 25,000 ML to the Commonwealth.

1.4 Key findings related to project delivery

- **Projects delivered greater water use efficiency:** All participants completed very significant works on-farm to deliver increased water use efficiency and increased value per ML of water applied. The significant works-programs were often delivered in a very short space of time. Participants and delivery partners confirmed the works were completed in line with contractual requirements established.
- **The projects acted as a catalyst for further investment:** In twelve of the sixteen projects reviewed the participants contributed significant extra funding and in-kind works to deliver even greater irrigation farm performance.
- **Funds used appropriately:** In no cases was there evidence of non-performance of works or claiming funding for works funded through other similar state or federal programs.
- **The works achieved water savings:** All participants confirmed the water savings, and water use efficiencies targeted are being achieved, or will be achieved when water availability for irrigators improves after the current drought conditions ease. In some cases, the participants indicated the water efficiency improvements experienced to-date have been greater than anticipated.
- **Farm performance improvements as a result of the investment:** The 16 projects reviewed include a wide range of works that will all improve water management on-farm. The review team were able to confirm works that better enable irrigation water to match crop demand utilising a range of the latest irrigation techniques. This includes fast-flow irrigation supported by on-farm storage and delivery capacity, enhanced water recycling systems, and installation of efficient double-tape dripper irrigation systems. The review team observed the delivery of on-farm improvements that have led, or will lead to:
 - lowest possible water use per Ha to achieve optimal yields from irrigated crops
 - lower incidences of water-logging and movement of water into ground water systems, traditionally caused by over-irrigation
 - less unwanted run-off of surplus irrigation water into creeks and rivers, and a correlating reduction or elimination of farm chemical run-off.
 - better management of previously uncontrolled storm water run-off from farmland.
- **Injection of capital into rural communities:** Most projects were initiated by the announcement of the availability of this funding and would not have occurred, certainly in the short term, without the Commonwealth support provided. The resulting surge in investment in irrigation hardware (pumps, dripper systems, pre-cast concrete, filters), direct employment in both civil and technology installation and the significant boost to regional towns (fuel, farm supplies and accommodation) are all attributable to this program.
- The review team estimate approximately 210 FTE's (or 70 FTE's for approximately 3 years) were directly created by contractors engaged in on-farm works as a result of the 16 projects reviewed. Significantly greater employment benefits were also experienced by suppliers, fuel agents, and specialist contractors. For the 16 projects reviewed, benefits to the local economy in Hay, Griffith, Leeton, Swan Hill and Boort were specifically cited by participants. Obviously, delivery of the broader OFIEP and PIIOP generated significantly more employment.
- **Delivery timing was fortunate:** The OFIEP and PIIOP works delivered during 2017, 2018 and 2019 coincided with a very dry period and subsequent low allocation levels throughout much of the Southern Murray-Darling Basin. These works provided a lifeline for a number of civil contractors, farm employees, rural hospitality-providers and associated contractors and suppliers.

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