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Economic Evaluation for Regional IWM

Project Summary

December 2022

Document Title

Economic Evaluation for Regional IWM - Project Summary

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Introduction

Integrated water management (IWM) investments offer a broader range of benefits and costs compared with business-as-usual water management approaches. Understanding these benefits is an important factor in designing a good project, and in securing the funding to implement it. The project *Economic Evaluation for Regional IWM* has delivered a range of activities to improve the capacity of IWM Forum practitioners in regional Victoria to identify and communicate these benefits.

This is key to identifying which projects to fund – whether from an organisation’s budget or via a DELWP grant process. A business case or grant application that is unclear about a project’s benefits, or overall merit, is unlikely to be successful.

Economic evaluation is the tool to achieve this. It provides a robust and repeatable way of comparing costs and benefits to determine if the project is worthwhile doing, or to identify which option is the ‘best bang for your buck’.

The project focused on adapting existing economic evaluation tools and approaches to suit the context and needs of regional practitioners, and provided a range of capacity building activities support their use. While there are numerous ways to undertake an economic evaluation, we used benefit-cost analysis (BCA) as the preferred tool. BCA is widely accepted within business and government.

This report provides a final summary of project activities, outputs and outcomes. We recommend reading this report in conjunction with the other project deliverables to provide a full picture of economic evaluation in regional IWM projects.

Background to the project

The project is delivered as part of Victoria’s IWM framework and to support regional IWM forums.

Victoria’s IWM framework

The IWM Framework for Victoria is a state-wide process of identifying, investigating and prioritising IWM opportunities. The IWM framework facilitates more joined-up planning between Traditional Owners, water corporations, catchment management authorities and local government, and feeds into water and land planning processes. The framework includes:

A definition – IWM is defined as: *... a collaborative approach to planning that brings together organisations that influence all elements of the water cycle, including waterways and bays, wastewater management, alternative and potable water supply, stormwater management and water treatment. It considers environmental, social and economic benefits.*

State-wide IWM outcomes – There are 7 key outcome areas across the water cycle, linked to sustainability, liveability, resilience and economic prosperity.

Regional and Metropolitan IWM Forums – IWM Forums have been established across the state to identify, prioritise and oversee the implementation of IWM opportunities in Victoria’s towns and cities. The forums bring together all organisations with an interest in the water cycle to facilitate collaborative planning.

Strategic Direction Statements – Each IWM Forum develops a Strategic Directions Statement that expresses the regional context, shared vision and water-related outcomes for its region, along with a list of IWM opportunities.

Catchment scale IWM Plans – Catchment scale plans in metro Melbourne set out indicators and measures to assess progress towards the catchment vision and strategic directions. The plans provide a way to bridge the gap between regional and local level initiatives by aligning strategic priorities and identifying on-ground initiatives. Catchment Plans have not been developed to regional IWM forum areas.

IWM Grants — DELWP provides grants to support the planning and delivery of IWM projects. The grants represent a government investment in IWM projects that respond to the shared challenges of climate change and population growth.

IWM in the regions

IWM is just as relevant for regional cities and towns as it is for Melbourne. The water cycle challenges affecting regional cities and towns include water supply, wastewater management, drainage/flooding and waterway health outcomes. The IWM benefits in regional cities and towns extend to liveability, biodiversity, community health and well-being as well as cost savings for utilities, councils, and CMAs.

During this project we identified some key attributes of IWM in the regions that may differ from metro programs:

1. Climate and context vary between regions. Variations such as rainfall, being coastal vs inland or being in areas experiencing high population growth influence the way IWM outcomes are achieved. This means that 'value for money' should be judged in a relative manner rather than comparing all regional projects together.
2. IWM benefits can take on a localised meaning. In some towns it may be a way to support local tourism, and in others it may have a community health and wellbeing angle. In others again, it may be an addition to region-wide biodiversity improvement activities. Understanding these local outcomes is important when evaluating project benefits.
3. Urban areas are smaller and more distributed in the regions, compared with metro Melbourne, and this has a bearing on the viability of IWM projects: regions are more likely to have a portfolio of multiple, small IWM projects spread across a service region and this may present practical challenges in terms of O&M, cost recovery and so on.
4. Providing essential services, efficiently, is often the driver for regional small-town projects. This is the perfect opportunity to introduce IWM as way of servicing these needs, enabling small towns to 'leapfrog' directly to IWM solutions rather than following the path of major cities which have adopted, and then retro fitted, centralised solutions to achieve contemporary liveability, sustainability and resilience outcomes.
5. IWM is only a one aspect of IWM practitioners' roles in the regions, and their level of experience with economic evaluation varies considerably. This means that the process of IWM, including economic evaluation, needs to be easy and fit for purpose.

Aim of the project

The project was delivered through a DELWP grant. The purpose of the grant was to

- Make water sensitive¹ policy and practice a mainstream approach, with a focus on economy evaluation.

¹ The term water sensitive/water sensitive city is used interchangeably in this project with integrated water management

- Further articulate and interpret what a water sensitive city looks like in a rural/regional context and the long-term social, health and environmental benefits of a water sensitive approach for a small town.
- Translate and give guidance on valuing non-market benefits and building business cases in a rural/regional context.
- Maintain and continue updating the INFFEWS benefit-cost and value tools developed by the CRC for Water Sensitive Cities.

One of our goals in delivering this grant was to encourage IWM practitioners to use benefit cost analysis more consistently and effectively, enabling them to better explain the benefits of their IWM projects. Doing so required us to understand how economic evaluation was currently being done, to understand the types of benefits that needed to be included, and to adapt our existing CRCWSC tools accordingly. In delivering these goals, we adopted a co-design approach as a way of building understanding and knowledge.

Project activities and outputs

The project comprised 5 stages to build IWM practitioners' capacity to undertake an economic evaluation. These stages, and the relevant deliverables are described below.

Stage 1 - Identifying the benefits of IWM to regional towns. This focus group activity engaged practitioners from different IWM Forums to discuss economic evaluation practices, IWM projects and the benefits they expected to see in their regions. This stage provided insight into current practices for economic evaluation that helped to shape the masterclasses and case studies (See Stages 2 and 4). It also provided an understanding of the challenges facing regional cities and towns, and a list of the main benefits of IWM projects. We mapped these lists to the IWM Outcomes for Victoria, and to the benefit categories of the CRCWSC Values Tool (see Stage 3).

Stage 2 - Capacity Building. In addition to the focus groups and co-designed case studies, the project delivered a 4-module master class on benefit cost analysis.

By talking to practitioners early in the project (Stage 1), we learnt that many are new to economic evaluation, or have limited experience. Indeed, IWM itself is relevantly new to these practitioners. For instance:

- 37% of participants' roles related to IWM (meaning that most of the time they are working on something else)
- 58% of participants have rarely or never done a BCA
- 42% of participants do BCAs occasionally.
- No participants do BCA regularly.

We used this knowledge to tailor our capacity building approach. Our curriculum included sessions to build a base understanding of key concepts, terminology and logic for economic evaluation and then to show how the key principles could be applied to projects and what the results actually mean. We focused less on the technical processes of 'how' to do a BCA on the assumption that this type of work would likely be outsourced to a consultant (e.g. see Figure 1).

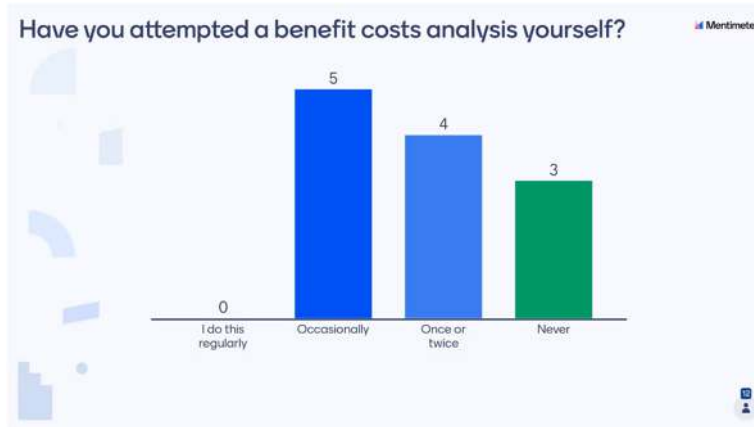


Figure 1: the number of participants who have personally undertaken economic evaluations.

We also co-designed the masterclass content with IWM practitioners. Knowledge gaps were identified and prioritised at the beginning of the master class (see Fig 2) and formed the basis of the sessions for the remaining modules. The masterclass delivery also included networking opportunities for participants by sharing project-related examples from each region.

Videos of these masterclasses have been provided as YouTube webinars as a resource for other IWM Forum members.



Figure 2 - Prioritised knowledge gaps to shape the masterclass

Stage 3 - Providing tools to guide the valuation of non-market benefits for regional IWM projects. In this stage, we used the outputs of the focus group discussions (stage 1) to do a literature review on the benefits of IWM for regional Victoria, aiming to locate relevant valuation studies and to update the Values Tool.

The CRC for Water Sensitive Cities' Values Tool already includes a large database individual studies that provide valuations for different IWM benefits. The tool several thousand benefit values, and is searchable by type of benefit, location etc.

The literature review identified 34 new studies, which were added to the database. A new search function was also added to help practitioners quickly locate studies relevant to regional Victoria. A guideline summarising the finding of this literature review has been developed, as well as an updated version of the Values Tool Instruction Guide.

As part of this project, DELWP and its partners were provided with 12 months access to the CRCWSC Economics tools. As a goodwill gesture, free access has been extended to the end of 2023 to enable the IWM Forums to benefit from the updates developed through this project.

Stage 4 - Case studies to demonstrate the principles, processes and tools. To demonstrate how rapid economic evaluation approaches could be applied in regional IWM projects, we undertook 2 case studies on regional IWM projects. These case studies include the Beaufort Linear green infrastructure project (Pyrenees Shire) and the Baranduda fields stormwater harvesting project (City of Wodonga). A rapid benefit-cost analysis approach was used for both case studies. For each, we worked alongside the project 'owners' (Pyrenees Shire and City of Wodonga) and applied the tools and processes introduced during the master classes. We also used the updated Values Tools to value the benefits of these projects. When doing these case studies, we explained that the outcomes had no direct influence on DELWP's IWM grants process - the case studies were for research and education purposes only.

Stage 5 - Developing guidance resources. The final project stage involved the development of a 2-part guideline for economic evaluation for regional IWM projects. Part A is a guide to choosing the best approach for an economic evaluation. It presents a summary of the BCA process, a selection of rapid economic evaluation approaches, along with what questions to ask and to ensure a good outcome is achieved. Part B provides more detail on the valuation of regional IWM benefits (See stages 1 and 3). The guidelines include summaries of the 2 case studies (Beaufort Linear and Baranduda Fields), as well as worked examples of valuing individual IWM benefits, a glossary and links to further reading. The audience for the guides is council practitioners who will likely commission consultants to do detailed costings and prepare business cases.

Project outcomes

The project generated a number of useful outcomes encompassing new tools to support IWM practice, improved understanding of the regional context for IWM and practitioner capacity building. These are further discussed below.

1. Visibility of barriers to (good) economic evaluation in the regions

Talking to regional IWM Forum members about IWM in regional cities and smaller regional towns helped to identify several reasons why economic evaluation has been difficult in the past:

- Time constraints for stakeholders (IWM practitioners often wear many hats, and have limited IWM experience nor time to spend on detailed IWM project work).
- Business cases rely on intangible liveability benefits that support small, local communities, but there is limited awareness of how to incorporate these benefits in economic assessments. This is particularly challenging if the benefit needs to be subsidised by regional communities who will not necessarily experience the benefits directly.

- Difficulty finding appropriate non-market values to use for regional IWM projects.
- Limited experience in cost-benefit analysis - either in doing an analysis or in commission a consultant.

2. Providing values for common regional IWM benefits

We have shown that valuation of regional IWM benefits has been a barrier to good economic evaluation, potentially resulting in benefits being entirely left out of business cases and grant applications.

IWM projects provide benefits ranging from drinking water savings to improved aesthetics and wellbeing benefits. Some of these benefits are easy to measure, quantify and evaluate using existing market price information. For example, the monetary value of drinking water savings benefits to the Council could be calculated by using the long-run marginal cost of water supply. Other benefits are intangible and harder to value. Consequently, these benefits are often excluded or poorly defined in formal project evaluations. Such underestimation of benefits could disadvantage IWM projects as their total costs may be perceived as higher than the estimated benefits.

Addressing this gap begins with a more specific understanding of what these regional IWM benefits are, and we did this by asking what IWM outcomes actually look like in a small town, from the perspective of regional practitioners. This generated a list of regional IWM benefits.

Using this understanding we successfully located 34 new valuation studies relevant to regions (noting that studies relevant to regional contexts were difficult to locate - this resource has not been done).

Table 1 provides a summary of the major benefit types and how these can be valued for projects in small towns across regional Victoria. Appendix A provides a list of the additional papers that have been added to the Values Tool.

Table 1 - A summary of IWM benefits and valuations for regional Victoria

IWM Benefit	How it can be valued and/or used
Ecological improvement, biodiversity	<p>Several studies provide information on peoples' values for ecological improvement and biodiversity protection that could be used to evaluate IWM projects.</p> <p>The main categories relate to improving vegetation in public open spaces, restoring ecology and improving waterway health, along with specific valuation studies looking at protecting native fish, water birds, and water quality/stormwater (noting the overlaps between these categories).</p> <p>Valuing the water quality benefits of stormwater management typically relies on the Melbourne Water nitrogen offset rate as a default value, although care should be taken when using this in catchments outside Melbourne. Still, we prefer to use a suitably adjusted nitrogen offset value in a BCA, rather than no value at all.</p>
Improved opportunities for recreation, improved aesthetics	<p>IWM projects can generate recreation opportunities by attracting new visitors to a region or creating new recreation opportunities for existing residents.</p> <p>Valuation studies relevant to this benefit are divided into 2 groups: the value of visiting a site for recreational purposes, and the value of potential improvement of a site for recreational purposes.</p> <p>Amenity and recreational benefits are often estimated together, and are likely to cover benefits related to recreation, aesthetics, and health benefits. Take care to avoid double counting.</p>

IWM Benefit	How it can be valued and/or used
Reduced energy costs	A potential benefit of IWM projects (especially urban greening projects) is electricity costs savings if the urban heat island is reduced.
Improved wastewater management	<p>Wastewater management improvement can be valued by looking at the cost savings and by looking at the value of recycled water.</p> <p>Usually, market prices or costs (long-run marginal costs) are used to estimate such benefits. There is some evidence that people are willing to pay for better wastewater management through recycling. However, for regional Victoria, we found only one willingness to pay study in Bendigo.</p>
Improved water stewardship, security of water supply, reduced water consumption	<p>Water stewardship is a broad term encompassing better management of water resources - through things like reducing water consumption, improved water use efficiency, more careful management of urban water and meeting new urban water demands from sustainable water sources. The overall benefit is better water security - for the individual town, but also for the region.</p> <p>Evidence shows people are willing to pay for better water security. This can be helpful when assessing the value of a new alternative water source project.</p> <p>Existing studies can be divided into 2 groups: willingness to pay to avoid water restrictions and willingness to pay for better monitoring and management of water use/resources in both metropolitan and regional centres in Victoria and New South Wales.</p> <p>Valuing other benefits such as reduced water consumption depends on whether the economic assessment takes a household or community perspective.</p>
Increased work productivity	<p>The link between green space and work productivity has been studied to some extent, based on people who reported being less productive due to heat stress in Victoria.</p> <p>These values could be used to calculate a cost saving benefits due to IWM projects.</p>
Improved health benefits	The health benefits of IWM projects could be substantial, because various studies have found people are more active if they live close to public open space. The types of benefits from more active lifestyles include healthcare cost savings and mental wellbeing benefits.
Delayed investment in infrastructure	IWM projects can delay investment in major infrastructures, which in turn generates cost savings benefits to the agencies (who may or may not be the proponent of the IWM project). The capital expenditure or operating expenditure savings can be incorporated directly in a BCA.
Reduced greenhouse gas emissions	Studies across Australia can be used to calculate willingness to pay for climate mitigation options.
Reduced flood risk and damage	Two different approaches could be taken to assess the value of reducing flood risk: cost savings approach and the willingness to pay approach.
Improved air quality	The air quality benefits from a large-scale green development have been estimated and could be used for IWM projects of similar size.
Traditional owner values	The inclusion of Traditional Owner values and culture, including the protection of cultural heritage sites is a benefit of IWM projects. However, for now, there is a very limited nonmarket value information available.

3. Guides and resources to facilitate rapid BCA

The project provides guidance (in several forms) to support the rapid economic assessment of IWM projects. The audience includes consultants engaged by project proponents, in-house experts who are prioritising project ideas and for agencies assessing IWM grant applications.

The main resources are three guidelines, including:

- Economic evaluation for regional IWM projects - Part A - Benefit cost analysis guide. This guide shows how to do a simple BCA using the project information that is already available, together with expert stakeholders' input.
- Economic evaluation for regional IWM projects - Part B - Valuing regional IWM benefits guide. This explains how to use existing nonmarket value information to evaluate and assess IWM projects in regional Victoria using the benefit transfer method.
- INFFEWS Value tool: Guideline (Version 4) - updated for regional Victorian IWM projects. This document is an update of an existing CRC for Water Sensitive Cities guide. It shows how to locate and adjust non-market values using the Values tool. This helps practitioners quantify non-market benefits of IWM projects in monetary terms.

Supporting these guides are:

- Case studies. The case study reports include detailed explanations of the processes used to rapidly develop the BCA for each project, including how the IWM benefits were identified and valued. It also shows how the valuations were integrated into the BCA and provides a discussion on interpreting the results. These studies provide a template for future BCA activities by IWM practitioners.
- Masterclass curriculum materials. Following the completion of the master class series, the video recordings were edited, reviewed by DELWP and then published on YouTube as a capacity building resource for other IWM practitioners. Potentially sensitive content was removed, along with class activities in Zoom breakout rooms etc. The slide decks and agendas have also been made available to DELWP and to the masterclass participants.

4. Building practitioner capacity

Building IWM practitioner capacity to undertake economic evaluation was a specific project aim. This outcome can be measured through the participation of IWM practitioners (the higher the participation, the better), and in the learning achieved (did participants' understanding of economic evaluation improve?).

In terms of participation, the project provided three opportunities: focus groups, masterclasses and the case studies. For the focus groups, 20 practitioners from 9 regional IWM forums participated. Table 2 provides a breakdown of focus group participation.

Table 2: High level demographics of focus group participants

Sector	Participant count	Male / Female	Regional IWM forums*
Utilities	8	13 / 7	9
Councils	9		
Business	1		
Catchment Management Authorities	2		
Total	20	20	9

*Regional IWM forums represented: East Gippsland, North-East, Gippsland, Goulburn Broken, Coliban, Central Highlands, Barwon, Great South Coast and Wimmera.

Some of the focus groups participants also joined the master classes. A core cohort of 36 regional IWM practitioners consistently attended the 4 master classes. DELWP metro staff also participated. Participant organisations included:

- DELWP (regions and metro)
- 3 CMAs (GHCMA, WGCMA, NECMA)
- 8 Water authorities (Barwon Water, Coliban Water, East Gippsland Water, Gippsland Water, Goulburn Valley Water Melbourne Water, North East Water, Wannon Water)
- 11 Councils (Alpine, East Gippsland, Geelong, Glenelg, Golden Plains, Greater Bendigo, Moira, Mount Alexander, Pyrenees, Wodonga, Yarriambiack)

The case studies used a deeper, applied learning approach to capacity building, which meant that the engagement was more targeted. Practitioners from 3 councils were part of the case study development (City of Wodonga, Pyrenees Shire, Golden Plains Shire). For each case study, we were assisted by one or two key contacts, while others from council (including the Pyrenees Shire CEO) participated in selected discussions/workshops.

Learning outcomes were assessed through 'before and after' surveys. Before the masterclass, 68% of the participants agreed with the statement "I understand economic evaluation". After the masterclass, 86% agreed with the statements "I understand the concepts, process and outputs behind BCA." 78% agreed with the statement "I understand what questions to ask to review a BCA" (Fig 3).

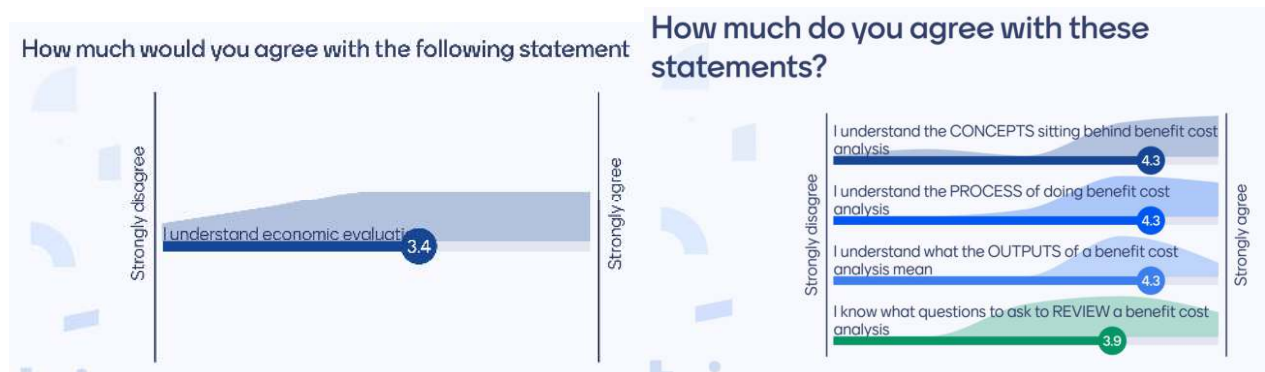


Fig 3 - Self assessment of understanding of economic evaluation showing the before and after masterclass survey results, showing the increase in capacity

We also undertook a sentiment analysis by asking practitioners to nominate words or phrases that expressed their 'feeling' about economic evaluation. A word cloud tool was used for this exercise, and it was also repeated before and after the masterclass. By categorising the individual responses as positive, neutral or negative 'feelings' about the subject, we can gauge overall sentiment. In this case, the results showed a shift from mainly positive to mainly neutral feelings about economic evaluation:

Before: 55% positive; 36% neutral, 9% negative

After: 33% positive; 50% neutral, 17% negative

We note that the responses used more general language about BCA in the 'before' survey (e.g. BCA is a 'challenge', is 'robust'). In the 'after' survey, the language was more specific to the BCA process (e.g. risk, benefits, equity), potentially highlighting a deeper level of awareness of the BCA process and their current capabilities. The number of negative responses doubled from 1 response to 2, and the number of survey response also increased by 1.

Discussion and next steps

The project set out to improve IWM practices in regional Victoria, specifically by improving the economic evaluation of IWM projects.

DELWP provided the project grant to support Water Sensitive Cities Australia as it continues to build on the work of the previous CRC for Water Sensitive Cities, focusing on making IWM a mainstream approach.

The grant addressed a practitioner knowledge gap with respect to the benefit of IWM in regional Victoria. It did this by interpreting what a water sensitive city looks like in a regional context, giving guidance on identifying and valuing the social, health and environmental benefits for a small town in this regional context. Maintaining, updating and providing access to the INFFEWS benefit-cost and Value tools was also part of the project scope.

The project has delivered these aims by adapting CRCWSC tools to suit the regional Victoria, demonstrating their use in multiple forum regions and delivering a range of practitioner capacity building activities. Specifically, the project has:

1. Shown how practitioners' currently approach economic evaluation, and identified their knowledge gaps.
2. Improved our understanding of the urban water challenges facing regional cities and towns, and the types of benefits that can accrue when IWM is employed as a solution.
3. Catalogued the range of IWM benefits that could be achieved through regional IWM projects and provided guidance on valuing these benefits when developing business cases and grant applications. This has been demonstrated through a database of valuation studies and 2 case studies that include worked examples.
4. Engaged with IWM practitioners from multiple forums through focus groups, a masterclass series and case studies. Evaluation of this capacity building shows that participants' self-assessed confidence in economic evaluation improved after undertaking the masterclass.
5. Provided a range of resources such as guidelines, case studies, valuation databases, webinar videos and a masterclass curriculum that support on-going IWM and capacity building initiatives. The tools and resources delivered through the project can updated over time to extend the value of this initial project. For instance, now the Values Tool has been configured with regional studies, this aspect of the database will grow as further regional studies become available. Similarly, the rapid regional BCA 'template' provided for each case study can be refined and improved as it is reused in the future.

The project shows that regional IWM has much in common with IWM in metro Melbourne (such as the overall principles and the ability of IWM to adapt to different rainfall contexts), but is challenged by the scale of working in small towns, and with practitioners who may be unfamiliar with IWM or economic evaluation.

In terms of economic evaluation, there is wide range of benefits that IWM can provide to regional towns, including supporting local tourism, improving the health of local communities, supporting catchment ecosystems, as well as providing water security, flood resilience and safe sanitation outcomes.

The project reminds us that economic evaluation is a tool to evaluate projects - to determine which are worthwhile undertaking or how to prioritise investment. The point is made that economic evaluation will not convert a bad project into a good one. In this regard, we recommend that economic principles be considered early in the life of an IWM project by considering how the project design can provide a wider range of potential benefits, what these benefits might be 'worth' to the community and how this could shape a co-investment opportunity. This will help shift the project from a 'conventional' water management approach to a 'IWM' approach.

The project also shows that economic evaluation can be fit-for-purpose. Even a simple BCA that identifies and describes IWM benefits qualitatively is an improvement on a business case that ignores the benefits in the absence of numerical data. We say that a simple BCA is better than no BCA at all. Provided the key principles of BCA are adhered to, a rapid BCA can still provide a robust basis for decision making. This is an important next step in advancing regional IWM.

The project has also shown that IWM projects should be evaluated from two perspectives - the perspective of the 'project owner' who pays for the project, and the wider perspective of the community. As demonstrated by the 2 case studies, an IWM project scope that delivers additional social, health and environmental benefits may not be cost effective for the project owner, but may still be a good investment for the wider community. Economic evaluation can quantify this difference, and make it clear how much 'investment return' will be gained from co-investment by others. This is also an important next step in advancing regional IWM.

For DELWP, the project also provides further insights into regional IWM processes, knowledge gaps and potential benefits. This understanding can help in designing ongoing IWM forum support, as well as policy development for regional Victoria.

Knowledge gaps and next steps

The project relied on existing knowledge and studies about IWM benefits, and only identified a small number of studies relevant to Victorian regions. In delivering the project, we identified several knowledge gaps and potential next steps to continue to support regional IWM practitioners:

- Providing policy and capacity building support for rapid economic assessment methods. The masterclass resources have been provided to enable this. A first step may be to review the initial masterclass to identify improvements and to incorporate feedback, and then to identify channels to scale up capacity building beyond the pilot developed in this project.
- Demonstrating and sharing the costs of delivering IWM in a range of regional contexts, particularly operational costs.
- Investing in primary research studies on:
 - Valuing regional IWM benefits. In particular values for liveability and environmental outcomes in regional towns.
 - Exploring ways to articulate and value cultural benefits arising from IWM activities
 - Understanding how people's preference for IWM benefits are influenced by their regional climate context (e.g. high vs low rainfall; coastal vs inland catchments).
 - Developing guidance on benefit transfer for different IWM regions across Victoria.
 - Incorporating uncertainty in future scenarios used as the basis of economic assessments, and valuing the benefit of options that are resilient to this uncertainty.

- Building knowledge on regional community willingness to pay for IWM benefits. For instance, councils and utilities could include quantitative surveys when they do their regular community engagement on strategic issues as a way to build up a long-term regional dataset on willingness to pay.
- Consider sponsoring the ongoing access to the Values Tools for regional IWM forums. Access fees are charged to cover the support of the tool, including regular literature reviews to update the list of studies in the database. It is recommended that the regional studies be updated in 2 years to identify additional studies that have been undertaken since 2022.

Appendix - List of studies added to Value Tool

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