



CRC for
Water Sensitive Cities

Bridging the IWM funding and financing gap

Summary



Australian Government
Department of Industry,
Innovation and Science

Business
Cooperative Research
Centres Programme

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The authors would like to thank representatives from state and local government, water utilities, regulators and private sector financiers who contributed to the project.

The project was commissioned and funded by the Victorian Government Department of Environment, Land, Water and Planning.

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Date of publication: September 2021

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Context and purpose of the guide

Population growth, technological change and climate change all mean we need more infrastructure, including water infrastructure. Infrastructure investment is planned to accommodate this demand, but the forecasts suggest a \$158 billion gap between current and needed Australian infrastructure investment. Further, the technologies and practices that have historically served cities well cannot address these complex modern challenges.

Integrated water management (IWM) is a way of addressing this gap in the water sector. Victoria is a leader in IWM, creating an enabling environment that brings together a broader range of stakeholders to explore a bigger range of options relating to both *what* is possible and *how* it can be achieved. A key part of this process is to broaden business case analysis, beyond a traditional single asset/single entity approach, to consider whole-of-community outcomes using structural and non-structural solutions at a range of scales.

The Department of Environment, Land, Water and Planning's (DELWP's) 2017 [Integrated Water Management Framework for Victoria](#) provides a process of identifying, investigating and prioritising IWM opportunities for inclusion in IWM Plans. This collaborative process facilitates agreement on the projects that will deliver the greatest social, economic and environmental value for given location. This question must be answered first. Optimal or innovative funding and financing approaches cannot magically make an unviable project worthwhile.

The next step is to decide who should pay, how and when. Often, viable IWM projects (even those with a supporting policy environment, capable and passionate advocates and a range of enabling tools and resources) are derailed by questions about who should pay, how and when.

Bridging the IWM funding and financing gap (the guide) outlines a three-step process to develop an appropriate financing and funding plan:

1. Understand the operating context, the partners, and the project
2. Identify and assess the pros and cons of a broad range of options
3. Select a preferred way forward that is practical, implementable and aligned to project objectives.

The guide draws on the experience and knowledge of representatives from a range of sectors including state and local government, water utilities, regulators and private sector financiers. DELWP commissioned the guide to help Victorian IWM Forum partner practitioners in the local government, water, private developer, state government and community sectors (including Traditional Owners) who design and collaborate on IWM projects.

The goal is to give practitioners a working knowledge of concepts and frameworks, so that they can communicate with and critically evaluate the advice given by the technical experts. Better understanding the range of funding and financing options will not guarantee that every IWM project proceeds. But hopefully, it will lead to better discussions about the range of options, fewer surprises and an increased likelihood that project funding and financing can be put in place to ensure worthwhile projects are more easily able to secure the resources they need to provide lasting community value.

This summary document introduces the three-step process and some key concepts. The full guide provides more detail and fleshes out the key concepts with examples. It also provides a checklist for practitioners to use when considering funding and financing options, and detailed explanations of funding and financing options, and their pros and cons.

Funding versus financing

Funding and financing have important but different roles in enabling IWM outcomes, determining who should pay, how and when.

Funding is the revenue available to pay for infrastructure. More funding (e.g. through innovative collaborative arrangements) can mean more revenue to support more infrastructure.

There are three main sources of funding for water-related infrastructure:

- **Tariffs:** A source that comes from users paying for a specific service. For example, water companies charge for the quantity of water provided. Ideally, charges account for capital costs, wear and tear, maintenance and environmental impacts.
- **Taxes:** A source that comes from the government—either through the general budget or a dedicated tax, to help pay for a service within its jurisdiction. For example, a municipal or state government may fund a department to provide flood management services.
- **Transfers:** A source that is not a tariff or a tax that comes from outside the organisation that is providing the service. For example, a state government or water utility may receive a grant from the federal government.

Financing merely relates to when infrastructure is paid for. It affects the timing of infrastructure delivery (e.g. does a business levy a tariff to fund new infrastructure in five years time when it has collected sufficient funding to pay for it, or do they use debt to deliver the infrastructure now and use the five years of funding to repay the debt). It does not influence the ability to deliver more infrastructure, which makes it secondary to funding.

There are two main sources of financing:

- **Equity:** The most common source of financing is equity generated within the normal operations of the government or business. For example, accumulated profits or operating surpluses are sources of equity financing. Other sources of equity are less relevant for governments but do have some relevance for water utilities and developers. They include investments from new or existing owners with the expectation of a return on that investment in the form of dividends.
- **Debt:** The most common sources of debt used to finance IWM projects are loans from banks or bond investors made in exchange for interest and a promise of repaying the principal. The cost of debt to the borrowing government or business tends to be lower than the cost of equity. However, this must be balanced against the reduced flexibility (interest must be paid regardless of any negative shocks to a business whereas dividends can be waived) and practical limits on the amount of debt that can be used.

Consistently, industry feedback confirms finance is available for projects with a robust business case and a clear funding stream. Several organisations outlined a hierarchy of importance:

- A project must stack up on benefit–cost grounds independently of funding and financing considerations. A different approach to funding or financing cannot magically make a project viable.
- Funding has primacy over financing, with securing financing contingent on securing clear funding with a known risk profile.
- Funding availability (or lack of) will typically be a constraining factor for a project.

3 steps to develop a funding and financing plan

IWM projects bring together different organisations with different options and preferences for funding and financing. IWM aims to build shared knowledge and processes that draw on diverse expertise and perspective to achieve common understanding and a shared plan.

The funding and financing guide supports this and provides a simplified structure by grouping and categorising key concepts. This approach both oversimplifies things (because concepts do not always fit neatly into boxes), and overcomplicates them (because not all concepts are relevant for all cases). As the name suggests, it is a guide. It is not as a substitute for technical support from experts such as Treasury Corp Victoria (TVC), the Department of Treasury and Finance and DELWP. It is intended to facilitate, not negate, effective engagement and consultation.

The guide recommends a three-step process to help water utilities, state and local governments, developers and community groups (including Traditional Owners) navigate their way to an appropriate financing and funding plan:

1. Understand the operating context, the partners, and the project
2. Identify and assess the pros and cons of a broad range of options
3. Select a preferred way forward that is practical, implementable and aligned to project objectives.

By definition IWM involves consultation and collaboration (as discussed in DELWP's [Cost Allocation Guidelines](#)). The guide aims to simplify the funding and financing elements of this process. Most of the information you need to apply the guide should already be generated from other elements of a well designed project and effective engagement process. The guide can be applied to a strategy or program level (particularly for small or business as usual activities) or to individual large, complex and high risk/strategic value projects.

Step 1: Understand the operating context, the partners and the project

Some of the information and analysis underpinning the IWM planning process is necessary to determine the optimal funding mix and financing mix. In particular, assessing funding and financing relies on an existing understanding of the following factors:

1.1 Define the broader contextual factors that will impact your funding and financing decision

Projects are not developed and delivered in a vacuum. A project's viability and the optimal funding and financing approach will be influenced by its broader context, which will likely change over time.

Factors to consider include:

- **Economic context**—The economic context can affect *funding* in the long term, primarily through population growth and productivity trends. Regional economic differences (e.g. smaller scale or customer base) or developments (e.g. opening or closure of major industry) can be particularly important. Shorter term economic trends are less likely to affect the appropriate funding mix for a long life asset. The economic context can affect *financing* via interest rates, foreign exchange rates and inflation on the cost of debt. As with funding, short term trends are less likely to affect the appropriate financing mix.
- **Technology context**—Changes in technology can affect *funding* by offering additional revenue streams and funding sources (e.g. resource recovery from wastewater, value capture from improved liveability). Technology can also affect *financing* by improving risk and operational management and reducing the amount and cost of financing.

- **Broader community context**—Community perceptions of what is a fair sharing of costs, risks and benefits across different locations, generations and social groups are likely to be influenced by recent events and will shift over time. Both the *funding* and *financing* mix of a new water project might also be affected by community views about whether the private sector’s role in providing or investing in water services is appropriate.
- **Policy and regulatory context**—Policy preferences and prohibitions can both increase or restrict *funding* and *financing* options. Examples include the ‘cap’ on local government rates, the definition and processes around water utility regulated prices, and government policy on private sector ownership of water-related assets.

1.2 Identify differing objectives of each partner

When identifying and engaging with partners and stakeholders, it is important to identify their goals and aspirations for the project overall and how they inform funding and financing objectives in particular. These motivations affect how stakeholders value costs, benefits and risks, and influence the relative attractiveness of different funding and financing opportunities. If managed well, aligning project objectives can create opportunities to design more efficient funding and finance packages.

Each partner will have their own set of—probably multiple—funding and financing objectives, so consider a broad range of areas and note that tradeoffs and prioritisation objectives may be needed. Examples include:

- maximising return on investment (e.g. *funding*: a water business might seek to earn a higher profit margin on new unregulated commercial activity; *financing*: debt will be a cheaper source of financing than equity)
- changing behaviour (e.g. a project proponent might prefer a *funding* mix for a water project with a higher user pays tariff component. The cost to consumers better reflects actual use, potentially reducing the need for investment in new capacity but also introducing more volatility to water business income and dividends to government)
- ensuring equitable access (e.g. the *funding* mix for a water project may include a government transfer component to ensure equitable access by low income or at-risk customers. This would also enable prices reflect the ‘true’ cost with a transparent and separately funded discount, rebate or concession applied for low income or at-risk community members)
- recovering project lifecycle costs (e.g. ensuring *funding* for lifecycle costs is sufficient and accountability is assigned for maintaining levels of service over time particularly when an asset is constructed by one party and transferred to another)
- raising money quickly for a priority investment now (e.g. a water utility may not be able to *finance* the upgrade of a noncompliant dam or repair flood damage now using existing retained earnings, so has to borrow money)
- providing for a future event (e.g. a local government may seek developer *funding* for a water sensitive urban design asset which will enable sustainable development in their local government area)
- achieving corporate social responsibility or policy objectives (e.g. an environmental project might be *funded* by a developer who wishes to enhance their community reputation and brand; a publicly owned agency may choose a funding or financing option that is not least direct cost but advances broader economic, social or environmental policy commitments).

1.3 Clarify project specific benefits and costs

A shared understanding of who benefits from the project, how and when, as well as who bears the cost, can inform a better discussion about funding and financing; that is, who should pay, how and when? A threshold question is to identify any misalignment of costs, benefits, ownership and responsibilities among the partners and

whether partners face any practical or in-principle barriers to funding or financing assets and projects they do not own.

- Are the benefits public or private or a combination of both?
- Are there material differences in the distribution of social, economic and environment impacts between:
 - different scales (e.g. local vs catchment scale) with the bigger the scale the broader the range of beneficiaries the larger the potential sources of funding.
 - across different community groups (e.g. low income residents) that may have implications for capacity-to-pay considerations
 - time periods (e.g. should property owners pay for catchment-scale flood protection and climate adaptation measures now that may not deliver benefits for many years?).

1.4 Clarify differing roles, responsibilities and constraints of each partner

The ability to secure *funding* requires clarity around who is responsible for the outcome, who is accountable for delivering it, who benefits, who is willing and able to pay, and who should be consulted and informed.

The ability to secure *financing* requires clarity around funding. For example, it will be easier and cheaper for a water utility to secure debt financing if the investment is clearly funded through a regulated asset stream, compared with a commercial investment involving funding from varied sources with various levels of commitment.

Clear roles and responsibilities should inform decisions about asset ownership and operation. Key to ensuring a solution delivers value over its lifecycle is clear allocation of responsibility for levels of service, asset ownership, maintenance and disposal. Clarity is important for ensuring appropriate funding is available over time. Being vague can lead to significant surprises or loss of levels of service. It may also impact availability and the cost of finance.

An asset owner may be different to the party that's responsible for an outcome or a risk. For example, a private sector partner may build, own and operate a recycled water treatment plant on behalf of a water utility who is accountable for financing and funding the supply of recycled water to customers.

1.5 Identify the project risks and how they should be allocated to each partner

A project's appropriate funding and financing approach is heavily influenced by project risks—the kinds of risks and who is responsible for managing them and wearing the consequences of them. Generally, the higher the project risk, the more likely the optimal finance solution will be skewed towards equity (because debt may become prohibitively expensive); the lower the risk, the more likely it will be skewed towards debt.

- Does each party understand the project's risks and how it may impact them differently in light of their roles and responsibilities? What is their risk appetite?
- Have risks and the sharing of risks been discussed up front with potential impact and response measures agreed by all parties to ensure no surprises?
- Are risks being managed or minimised? Risk management is the process of identifying and treating risks in a cost effective way. Risk minimisation is the process of trying to eradicate the exposure from risks. The goal should be to ensure the party best placed to manage a risk is the party responsible for that risk.

Step 2: Identify a broad range of options

A very broad range of funding and financing options is available, with an almost limitless number of combinations. Funding has primacy, with financing contingent on clear funding streams with a known risk profile. Funding availability (or lack of) will typically be a constraining factor for a project; currently, industry feedback suggests financing availability is unlikely to be a constraint in Victoria once funding is secured.

2.1 First secure funding

Figure 1 presents a simplified taxonomy of funding sources for IWM projects. The list is not exhaustive and should be used as a guide. (Appendix 2 of the full guide contains a more detailed matrix, including descriptions, examples, discussion of when they should be used, and a list of risks and things to consider.)

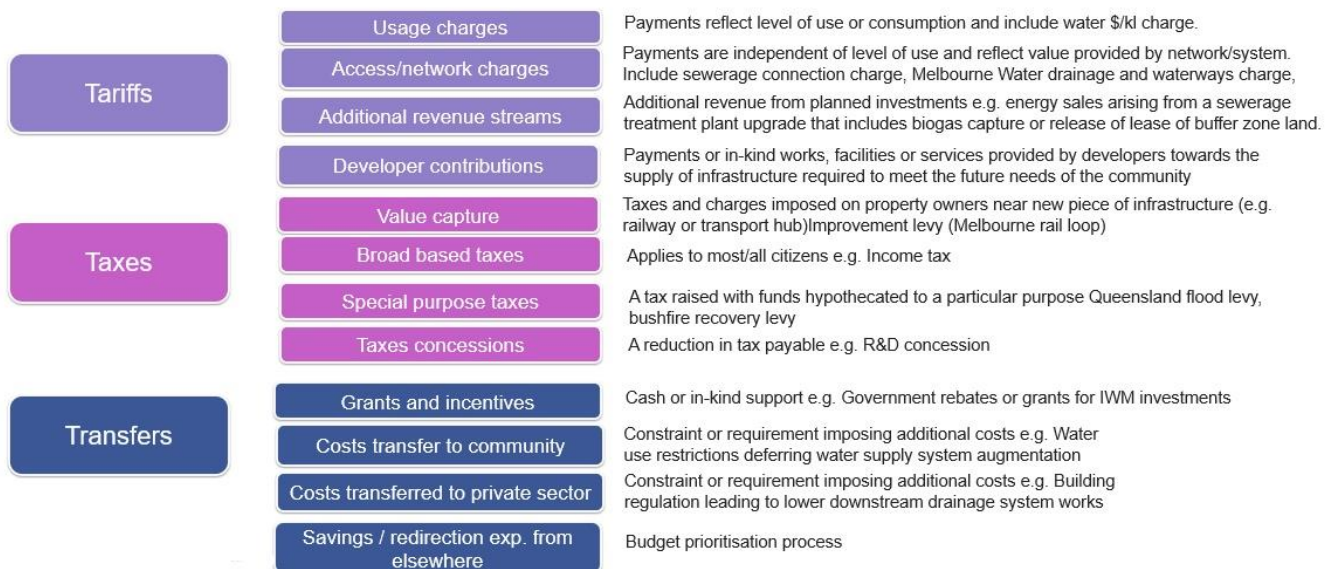


Figure 1: Funding sources for IWM projects

IWM projects can unlock a broader range of benefits that can draw in additional funding sources. So, it is possible the right funding mix can save an otherwise viable project. For example, a wetland investment that benefits society might not go ahead without funding such as capturing some of the value created for developers/property owners. Importantly, even in this case, the primary focus is on the net benefit to the community. The appropriate funding mix to make the project viable is a secondary consideration.

An entity's current funding mix is typically a good starting point for understanding their operating context, risk appetite and established approval processes and implementation systems. But remember, a partner's existing funding base is not necessarily the optimal funding base for every project, particularly given IWM projects may not be business-as-usual activities. So consider a broad range of options within what's possible (e.g. there is no point considering tax options for a private developer). Further, not considering alternatives stifles innovative solutions.

2.2 Then lock in finance

While financing often means different things for public and private entities, several general principles apply:

- Equity is built up over time from profits/surplus from operations or provided via an external transfer (injection) of resources.
- Debt is usually cheaper than equity.
- Debt must be repaid (serviced) within the agreed terms.
- Higher project risk or less secure funding increases the cost of debt.
- High debt—at a project, organisational or state level—can increase the cost of finance.

Figure 2 presents a simplified taxonomy of financing sources for IWM projects. (Appendix 3 of the full guide contains a more detailed matrix, including descriptions, examples, discussion of when they should be used, and a list of risks and things to consider.) As with funding, the list is not exhaustive and should be used as a guide.

Changes to the financing mix are unlikely to make previously unviable projects viable. Funding is the revenue that pays for infrastructure—more funding (e.g. from identifying additional revenue stream or beneficiaries willing to contribute additional amounts) can support more infrastructure. In contrast, financing merely affects when we pay for infrastructure.



Figure 2: Financing sources for IWM projects

While secondary to funding, financing must still be considered. Governments and businesses should focus on the right mix of financing that delivers the lowest cost within risk tolerances (referred to as balance sheet management). As with funding, an entity's current financing mix will typically be a good starting point. But again, a partner's existing financing base may not necessarily be the optimal financing base for every project. So, it is important consider a broad range of options within what's possible (e.g. there is no point considering a government raising equity by issuing ordinary shares).

Step 3: Select preferred approach and develop an implementation plan

The final step brings together the existing business case analysis, the analysis of the operating environment conducted in step 1 and the options analysis of funding and financing in step 2, to identify preferred option(s) that are practical and implementable. Appendix 1 provides a handy checklist for combining these steps.

Practicality is the key to identifying a preferred solution. There is no point designing a 'first best' innovative solution that theoretically delivers the most efficient outcome if it is too difficult, costly or impractical to implement. Consider the following factors when comparing 'first best' and 'second best' options:

- **Complexity.** For example, the 'first best' conceptual funding solution for a state government sponsored major IWM project may be levying a special land tax. However, designing and implementing this funding scheme will be complex. Similarly, a polluter pays charge for nitrogen discharges to a waterway might create an incentive to reduce pollution, but to be effective it must be underpinned by deep understanding of local conditions and supported by appropriate measurement, education and billing arrangements. In both cases, a simpler 'second best' option may be a more appropriate solution particularly in the short term or as a transition measure. A short term, less complex, second best approach also could be coupled with a pilot project that builds technical understanding and stakeholder acceptance as part longer term more sophisticated approach (e.g. introducing a low nitrogen charge as a pilot, with appropriate information and support, to polluters above a certain threshold or in a defined hot spot area. Over time the charge could be refined, increased and more widely applied).
- **Stakeholder considerations.** For example, the land tax option above may attract public criticism from those whose primary place of residence was previously exempt from the tax particularly where this is done without appropriate consultation, justification and transitional arrangements. Similarly, stakeholder engagement in relation introducing a nitrogen charge will be essential to ensure the design is effective and the implementation is fair particularly where changing behavior (e.g. changing production processes or contractual arrangements) is difficult in the short run.
- **Technical capacity.** For example, introducing a new tariff structure (e.g. a property value based charge) may ensure beneficiaries pay in proportion to the benefits they receive but may also be very expensive to administer and maintain and may add revenue risk because the organisation may not currently have the required expertise, information or billing system capability. Pooling of expertise either formally (e.g. joint ventures or MoUs) and informally (e.g. communities of practice) across organisations on shared issues (e.g. demand forecasting, tariff and bill design) is a common way of optimizing available technical capacity, reducing risk and disseminating better practice, particularly for small or publicly owned entities.
- **Scale.** Is funding and financing being considered at the most efficient and effective scale? Should projects be considered individually (e.g. if they are very large, complex or have significant strategic/risk implications) or as part of a broader program. Grouping projects under an overarching strategy and customer/regulatory requirement is particularly important for regulated water business but an integrated program can also reduce the overall funding requirement. Grouping projects can also achieve a scale where more the costs and complexity of more sophisticated 'first best' funding and financing mechanisms (e.g. public-private partnerships) are justified. Consultation with finance experts also suggests that it is often easier and lower cost to finance one large group of projects through lower transactions costs and where diversification across a portfolio of projects can reduce risk. Regional local governments or water authorities may collaborate and seek joint funding for a group of similar IWM projects initiatives.
- **Authorising environment.** For example, private sector equity, asset recycling or PPPs may all be an effective way to finance water sector investment, but may not be consistent with government policy. In this case the IWM practitioners must either work within existing constraints or collaborate with others to build the evidence base and support for reform.¹

¹ CRCWSC Think Tank papers on [Utilities of the Future](#) and [Transformative Cities](#) provide advice for both scenarios

A final note on how to use this guide

The steps outlined in this guide aim to ensure objectives are clear and a broad range of options can be considered against a shared set of objectives and a common understanding of contextual factors. The guide provides a structured process and a menu of options, rather than a prescriptive approach. The main report provides more detail about the different types of funding and financing that practitioners can consider.

An almost infinite number of funding and financing options can be available to project proponents. There is little point agonising over which ‘box’ a type of financing belongs in—indeed hybrids and variations are common. Plus, funding and financing can overlap—for example, asset sales have funding and financing characteristics. Also, a specific project may have overlapping layers of funding and financing for different players:

- A water corporation might finance a flood mitigation scheme through a mix of retained earnings, borrowing money from TVC, and an equity injection from the state government owner.
- The state government might fund its equity injection via broad based taxes and savings from reduced spending on another environmental initiative.
- TCV might source the financing of its loan to the water corporation by drawing on its existing general obligation bond portfolio and via green bond.

We encourage project proponents to see the categorisations as illustrative; they are instructive but not absolute. They are intended to help start conversations and support exploration of options with greater confidence. Practitioners should use guides like this one flexibly and challenge assumptions and look for alternatives often. These guidelines will not make an unviable project viable, but the discipline of looking at a problem from different perspectives in an open, informed and collaborative way as outlined in the guide can help ensure good projects secure the resources they need to deliver enduring value.


Appendix 1: Funding and financing plan summary table

Use this table to summarise the key elements of your funding and financing plan.

Project review	
What are the project objectives?	
Why is this project the best solution and how was it identified?	
Who are the partners with an interest in the project?	
What are the key project risks and who will manage those risks?	
Project context	
What are the broader and industry specific operating environment issues that will impact the project?	
How are the objectives of each partner the same/different?	
How are lifecycle benefits and costs shared between different stakeholders, locations over time?	
Funding	
What are the funding objectives?	
What is the cost sharing principle (beneficiary, polluter, capacity, a combination of these)?	
What funding options have been considered?	
Are there any free riders or benefits that can be monetised?	
Describe preferred funding options	
This is the preferred funding option because...	
Implementation will be efficient, practical and fair because...	
Financing	
What are the financing objectives?	
What financing options have been considered?	
Describe preferred financing options	
This is the preferred financing option because...	
Implementation will be efficient, practical and fair because...	



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