Water Quality offsets framework for Victoria

In Victoria, the use of biodiversity, carbon and salinity offsets are well established and commonly used in practice. However a formal, widely accepted approach for managing water quality offsets did not exist.

The Victorian Smart Water Fund engaged Alluvium to support the further development of a water quality offsets framework for the Victorian Water Industry. Central to development of the framework was consultation with stakeholders from across the Victorian water industry and state government agencies, including the EPA. Another important part of the project was exploration of case studies, in particular that of Western Water's Gisborne Recycled Water Plant and the Jacksons Creek, into which the plant discharges.

The framework developed provides a support tool for the Victorian water industry. It describes how a water corporation can assess and implement potential options for offsetting the water quality impacts of wastewater discharges into waterways.

Such offset options might be considered in instances where water corporations face a significant challenge in meeting existing or projected EPA discharge licence conditions or recognise a genuine opportunity to deliver a net environmental benefit at a lower community cost. In many instances this will be driven by the potential to defer capital expenditure on infrastructure upgrades that might otherwise help meet some policy or regulatory driver.

The challenge is to provide sufficient confidence for the community and the regulators that the offset option does provide a 'net benefit' to the environment – it is not just a method of saving on expenditure.

Offset principles

The framework was developed in close consultation with stakeholders from across the Victorian water industry and state government agencies, including the EPA. It uses the EPA's proposed offset principles (which were developed in 2008/9 and principles for environmental protection (*Environment Protection Act 1970*) as its basis.

These principles (which are consistent with many offsets schemes around the world were adapted and defined as:

Equivalence - Demonstrated to provide the equivalent or greater improvement of the parameter/value than a base case. Ratios were used to account for uncertainty – if there was considerable uncertainty in an offset action more of that action was required.

Alignment with management priorities – the offset actions were required to be consistent with the overall management approach to the particular waterway. This principle ensures that the action is contributing to a long-term strategy to restoration or management.

Additional – Related to the principle above the proposed offset actions needs to be additional to any funded actions already planned. This principle ensures that there is no double counting.

Measurable – The offset actions, and the result of those actions, needs to be measurable to the satisfaction of the regulator.

Timely – The results of the offset action should occur over that same timeframe as the base case. Ratios were used to increase offset actions if the action was longer term (such as planting trees)

Located Appropriately - The results of the offset action should occur at the same place as the base case. Ratios were used to increase offset actions if the action was removed from the location.

Verifiable and Enforceable - Offset actions need to verifiable (preferably against some standard method) and enforceable (through some agreed mechanism) to the satisfaction of the regulator.

All potential offsets are required to meet these principles before assessment. The preferred option would then be identified by using two further tests:

Socially acceptable **-** Are all proposed options acceptable to both the local and wider community. This is particularly important if the base case impacts one community but the offset action impacts another. Depending on the complexity of the case this may require significant consultation.

Lifecycle Cost Analysis **–** which options provide the lowest cost to the community.

Non like for like

The unique aspect of the framework that was developed is that it considered 'non like for like' offsets. This term was used to define a situation where, in a low risk situation, offset options might be considered in the short term even if they improved a different aspect of the environment than the one that triggered the base case.

Importantly this only applied in cases that had been through a risk assessment consistent with Victoria's State Environment Protection Policy. The offsets framework therefore was developed with five phases, phases one and two not being offset specific rather applying to all actions that would trigger a regulatory or policy process.

To address the complexity of 'non like for like' situations three types of offsets that have been explored through this framework based on the currency (defined as the parameter that is causing the impact) and the beneficial use/value. These three types are:

Type 1: Same currency, same beneficial use

Example: Nitrogen discharge from a treatment plant is contributing to excess nitrogen loads (and increased risks of algal blooms) in a coastal embayment. Opportunities exist in the catchment to reduce nitrogen loads from other sources such as revegetation of riparian zones.

Type 2: Different currency, same beneficial use

Example: Nutrients from a treatment plant are increasing the risk of algal blooms in a creek which threatens drought refuge for fish. Opportunity exists however to purchase temporary water rights for environmental flows which would reduce this risk and provide water for spring flushes to promote fish migration.

Type 3: Different currency, different beneficial use

Example: An emergency relief structure for the sewer system is considered low overall risk but still has social and some difficult to define environmental impacts on the local creek. The local community are in favour of building some wetlands that will provide some water quality benefit but also will provide habitat and amenity functions.

Importantly the burden of providing evidence for offset options rests with the proponent. As the complexity increases (from type 1 to type 3) the level of evidence required, and consultation needed, increases.

During the project the framework was tested against various real world examples from the Victorian Water industry including the previously mentioned Gisborne Treatment Plant, emergency relief structures and winter storages.

Framework structure

Phase 1: Preliminary assessment

- **Intent**: To understand the problem that is being addressed
- **Description**: Define the scope of the issue (using existing data and studies), identify gaps in the data, the beneficial uses of the waterway and the potential risks to beneficial uses.
- **Who**: Led by the proponent with guidance from the Offsets Technical Review Panel. Should involve consultation the waterway manager or EPA
- **Outcome**: A high level assessment of the problem based on existing available data, identification of what additional information needs to be collected.

Phase 2: Assessment of risks to beneficial uses

- **Intent:** Determine the level of risk to beneficial uses
- **Description**: Obtain all data and information required to evaluate the risks to beneficial uses. Will use exisiting or develop new conceptual models of how actions relate to beneficial uses including levels of confidence and uncertainty. May require collection of additional data and information
- **Who**: Led by proponent (will likely use information and include consultation with waterway manager or other relevant authority)
- **Outcome**: Determine if offsets are an appropriate mechanism for the issue

Phase 3: Offset Development, Evaluation and Selection

- **Intent**: Ensure Net Environmental Benefit is achieved
- **Description**: Develop, evaluate and select offset action(s)
- **Who**: Proponent (possibly with input from an external party or Offsets Technical Review Panel) and supported by waterway manager and EPA. Will involve community consultation
- **Outcome**: Recommendation, supported by the Offsets Technical Panel, to the EPA about a preferred offset action. Formal approval of approach by EPA.

Phase 4 : Offset Implementation

Intent: Acheive net environmental benefit through approved offset action
Description: Implement approved action
Who: Likely to be led through an agreement between proponent and asset manager (but others could deliver works)
Outcome: Offset is implemented in such a manner to meet requirements of 'verifiable' principle

Phase 5 : Offset Review

- **Intent**: To improve the framework/build up information that improves the efficiency of the process
- **Description**: Ongoing evaluation and monitoring of offset action(s)
- **Who**: Depends on the 'Owner' of the framework. Supported by Offsets Technical Review Panel. Requires in kind support from past proponents.
- **Outcome**: Improved Offsets Framework (more efficient for proponent, more effective outcomes)