

Adoption by MCA Member Companies Explained

Minerals Council of Australia member companies have endorsed two phases of framework adoption. These include:

1. Alignment of company water metrics consistent with the Water Accounting Framework Input-Output Model.
2. Alignment of company water quality descriptors consistent with the Water Accounting Framework (currently under adoption by 1 July 2015)

MCA member companies have committed to the following communication using the framework:

3. Using the framework definitions and metrics to satisfy existing public reporting (company reporting or similar) on company aggregated water inputs and outputs and quality. Reporting requirements could include reporting on volumes against the Global Reporting Initiative.
4. Providing input into MCA surveys on water inputs and outputs for use in broader communication of aggregate mining sector water use by region or jurisdiction

An overview of the water accounting framework and its use can be found in **Attachment A** and full implementation guidance and an Input-Output Model Excel Workbook Template can be found at http://www.minerals.org.au/focus/sustainable_development/water_accounting.

What needs to be done to fulfil the MCA Member Company's commitment?

1. Alignment of Company water metrics consistent with the Water Accounting Framework Input-Output Model.

Of primary importance to the alignment of company water metrics is the adoption of the four **Source** and five **Destination** categories provided within the framework. These include:

- **Sources:** Surface Water, Groundwater, Sea Water and Third Party Water.
- **Destinations:** Surface Water, Groundwater, Sea Water, Supply to Third Party and Other.

Full definitions for each of the above categories are provided within the Framework Guidance (Section 2.2.1).

While a list of individual inputs and outputs, which form subsets of the Source and Destination categories, have been provided within the Framework guidance, these are not prescriptive and can be removed, modified or new categories added depending on the specific needs of a company or operation.

Along with the standard definitions, standard units should be adopted; Mega-litres (ML) have been adopted for the purposes of the framework.

2. Alignment of company water quality descriptors consistent with the Water Accounting Framework

Water quality is an important component of the water accounting framework and the goal of consistent reporting and communication of water use.

The framework provides three categories of water. These include:

Category 1: Water is of a high quality and may require minimal and inexpensive treatment (for example disinfection and pond settlement of solids) to raise the quality to appropriate drinking water standards.

Category 2: Water is of a medium quality with individual constituents encompassing a wide range of values. It would require moderate level of treatment such as disinfection, neutralisation, removal of solids and chemicals to meet appropriate drinking water standards.

Category 3: Water is of a low quality with individual constituents encompassing high values of total dissolved solids, elevated levels of dissolved metals or extreme levels of pH. It would require significant treatment to remove dissolved solids and metals, neutralise and disinfect to meet appropriate drinking water standards.

To satisfy this commitment, companies should align their generic water quality categories with the three categories provided above. A list of water quality parameter 'thresholds' and a decision tree is provided in the User Guide (Section 2.4) to enable companies to select the appropriate water quality category.

3. Annual public reporting (Company Reporting or similar) on company aggregated water inputs and outputs using the framework definitions and metrics.

To promote communication and transparency of minerals industry water use, MCA member Companies are asked to use the water accounting framework to meet their annual public water reporting needs at an aggregated company level.

To satisfy this commitment, companies should use the framework to meet any of its existing public water reporting requirements (such as annual sustainability or performance reporting or similar).

Accordingly, companies may use the framework to respond to *Global Reporting Initiative (GRI)* reporting requirements for *EN8 – Total Water Withdrawn by Source*, and *EN21 – Total Water discharged by Quality and Destination*.

Methods on how to use the framework to satisfy GRI reporting requirements are provided both within the Water Accounting Framework User Guide (Section 6.1) and the User Template provided.

4. Providing input into MCA surveys on water inputs and outputs for use in broader communication of aggregate mining sector water use by region or jurisdiction.

For the purpose of broader communication, MCA member companies may be asked from time to time by the MCA to provide input into water use surveys for use in reporting aggregate Industry water use. Adoption of the Water Accounting Framework Input-Output Model will facilitate this process.

Attachment A

Quick Reference Guide to the Water Accounting Framework Input-Output Model

Overview

The minerals industry water accounting framework provides a consistent methodology for the communication of how an operational facility interacts with water. This methodology is based on the consistent representation of these water interactions, as shown in the figure below:

- (1) Inputs represent the receipt of water to the operational facility;
- (2) Outputs represent the removal of water from the operational facility;
- (3) Diversion represents water that is moved around or through the operational facility;
- (4) The task-treat-store cycle represents what an operational facility does with its water and how it stores it.

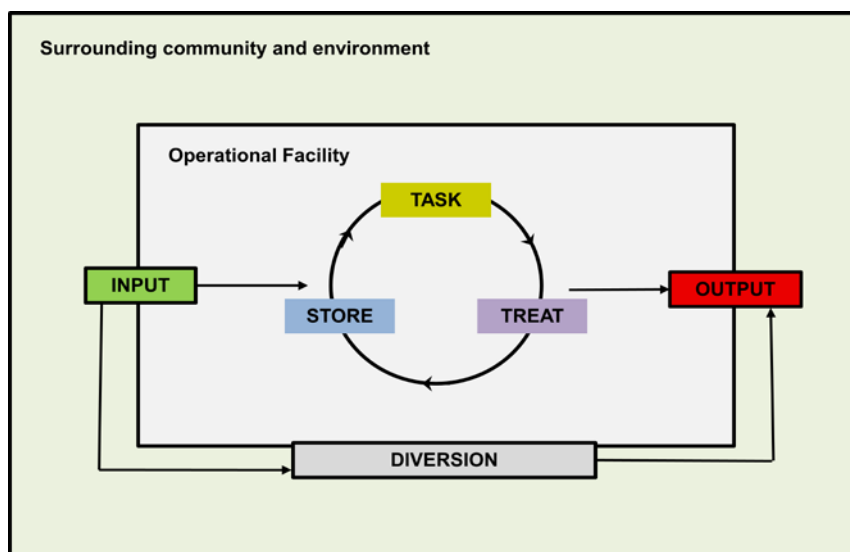


Figure 1 - Consistent representation of the water system of an operational facility

The **Input-Output** model represents the intersection of the facility with the surrounding environment and community. The Input-Output model is a consistent method for reporting a facility's water balance. It lists all inputs by source and all outputs by destination. The Input-Output model does not introduce any new concepts, it simply proposes a consistent way of communicating the water information that most mining companies and operational facilities already collect.

Key information required for the input-Output Model includes:

- Flow volumes into and out of the operational facility by source and destination.
- Diversion flow volumes 'around' the operational facility by source and destination.
- Water quality categorisation of flows (based on framework descriptors).
- Assignment of flow accuracy, based upon water accounting framework methodology.
- 'Material' or account relevant information provided through a Contextual Statement and accompanying Notes.

The second component of the water accounting framework is the **Operational Model**, which is a consistent method for the calculation and reporting of water reuse and recycling (store, treat and task cycle within an operation). Given the extensive capacity building required by companies, adoption of the operational model is optional for MCA member companies.

Further Guidance

Framework Guidance and an Input-Output Model Template is available at

http://www.minerals.org.au/focus/sustainable_development/water_accounting.

For information, a quick reference guide on how to use the water accounting framework input-output model, based upon the format provided in the framework template has been provided in the following **Figure 2**.

Figure 2
Water Accounting Framework
for the Minerals Industry
Input-Output Model Template
Quick Reference Guide

MCA Members Note: Columns 1-3 are recommended for companies to use, while columns 4-5 are optional only

The **Input-Output Model** represents all water which is tasked or treated or stored for intention to use by the operational facility. By definition, this excludes diversions. Which flows are included or excluded in this section of the model will be dependent on where the operational boundary is defined.

Input-Outputs for **Diversions** are reported separately. Diversions include water which is actively managed but not stored for intention to use, tasked or treated by the operational facility.

Recommended, but not prescriptive

The categories for **Sources** and **Destinations** and their definitions are key to the water accounting as framework alignment is dependent on their use.

A list of individual **Inputs** and **Outputs** has been provided. **These may be modified as needed. Individual inputs and outputs can be removed, modified or new categories added as companies or operations require.**

Flow Volumes Data entered here. Water Quality Categories have been provided and defined based upon a set of parameter 'thresholds'. **Alignment of Units (ML) is required.**

Optional Only

Data accuracy information is required. It is important to note that the aim of the water accounting framework is not to produce perfect water accounts, but to provide information in a consistent way.

Notes are important to include to provide context for entries, including sources or for defining new 'input' and 'output' sub elements.

OPERATIONAL FACILITY (INPUT-OUTPUT)

Input-Output	Source/Destination	Inputs/Outputs	Water Quality			Sub-Element Total (ML)	Accuracy (high, medium, low)			Notes (1,2,..)
			Category 1 (ML)	Category 2 (ML)	Category 3 (ML)		Measured	Estimated	Simulated	
Input	Surface Water	Precipitation and Runoff	e.g. 5016	942					Low	1
		Rivers and Creeks	1452				High			2
		External Surface Water Storages								
	Groundwater	Aquifer Interception		487			High			2
		Bore Fields	354				High			2
		Entrainment		562			Low			3
	Sea Water	Estuary								
		Sea/Ocean								
	Third Party Water	Contract/Municipal								
		Waste Water		4218			High			2
TOTAL INPUTS			6822	6209	0					
Output	Surface Water	Discharge								
		Environmental Flows								
	Groundwater	Seepage		301					Medium	1
		Reinjection								
	Sea Water	Discharge to Estuary								
		Discharge to Sea/Ocean								
	Supply to Third Party									
	Other	Evaporation	5019						High	1
		Entrainment			4300			Medium		
		Other (define)		222				Medium		5
TOTAL OUTPUTS			5019	523	4300					

DIVERSIONS (INPUT-OUTPUT)¹

Input	Surface Water	Precipitation and Runoff	320					High		6
		Rivers & Creeks		100			Medium			1
	Groundwater	Aquifer Interception (Dewatering)								
	TOTAL DIVERSION INPUTS			320	100					
Output	Surface Water	Discharge	370					High		6
	Groundwater	Reinjection		50			High			1
	Supply to Third Party									
	Other	Other (define)								
TOTAL DIVERSION OUTPUTS			370	50						

¹ Note: Only Commonly used Diversion Source and Destination Categories presented here.