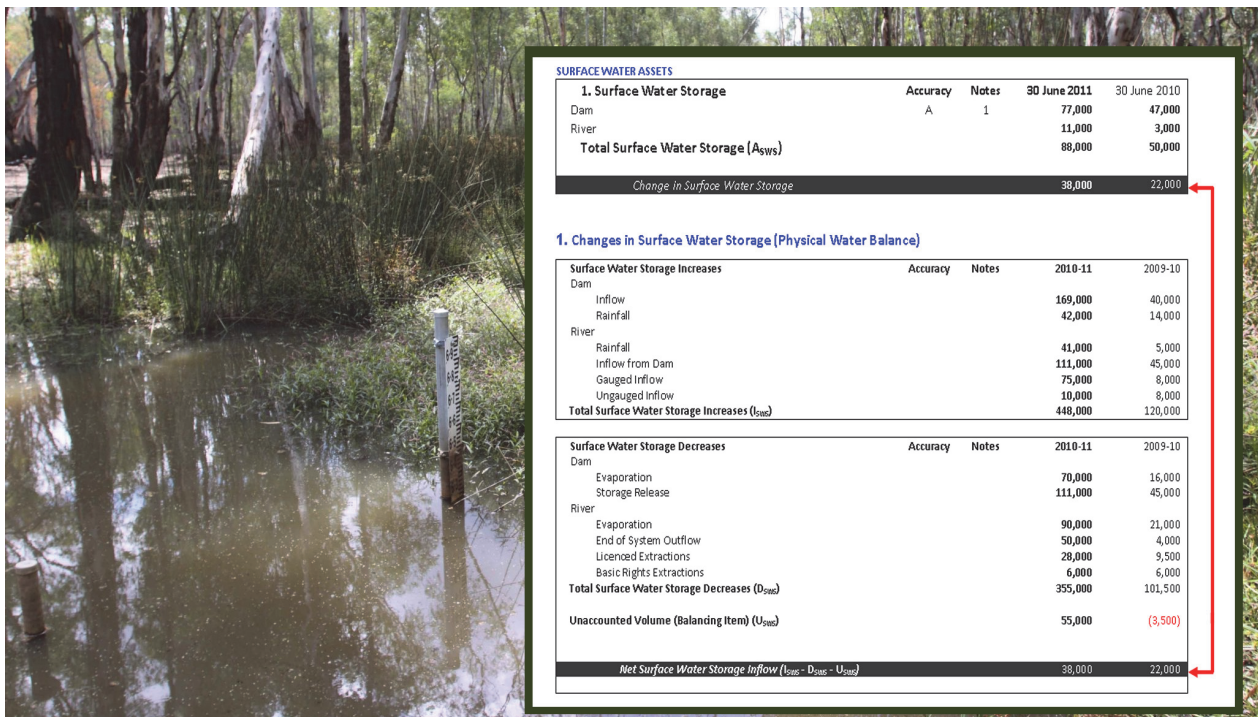


Guide to General Purpose Water Accounting Reports



SURFACE WATER ASSETS					
1. Surface Water Storage					
	Accuracy	Notes	30 June 2011	30 June 2010	
Dam	A	1	77,000	47,000	
River			11,000	3,000	
Total Surface Water Storage (A_{SWS})			88,000	50,000	
<i>Change in Surface Water Storage</i>			38,000	22,000	
1. Changes in Surface Water Storage (Physical Water Balance)					
Surface Water Storage Increases					
	Accuracy	Notes	2010-11	2009-10	
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Inflow			169,000	40,000	
Rainfall			42,000	14,000	
River					
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Inflow from Dam			111,000	45,000	
Gauged Inflow			75,000	8,000	
Ungauged Inflow			10,000	8,000	
Total Surface Water Storage Increases (I_{SWS})			448,000	120,000	
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	Accuracy	Notes	2010-11	2009-10	
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Evaporation			70,000	16,000	
Storage Release			111,000	45,000	
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End of System Outflow			50,000	4,000	
Licensed Extractions			28,000	9,500	
Basic Rights Extractions			6,000	6,000	
Total Surface Water Storage Decreases (D_{SWS})			355,000	101,500	
Unaccounted Volume (Balancing Item) (U_{SWS})			55,000	(3,500)	
<i>Net Surface Water Storage Inflow (I_{SWS} - D_{SWS} - U_{SWS})</i>			38,000	22,000	

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The NSW Office of Water manages the policy and regulatory frameworks for the state's surface water and groundwater resources, to provide a secure and sustainable water supply for all users. It also supports water utilities in the provision of water and sewerage services throughout New South Wales.

Guide to General Purpose Water Accounting Reports

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Introduction

Water accounting across Australia is undergoing major reform resulting from agreements reached under the National Water Initiative that recognise the need for a standardised, cohesive and comparable approach for water accounting and reporting. A review undertaken in 2006 found that water reporting was being developed in an ad-hoc fashion and recommended the need for total accounting reform whereby water accounting would be developed as a discipline comparable to that of financial accounting.

In line with this recommendation the Water Accounting Standards Board (WASB) was formed with the task of implementing a national standard for water accounting. This process has resulted in the production of the 'Exposure Draft of Australian Water Accounting Standards 1 (ED AWAS 1)' which defines the structure for preparing a 'General Purpose Water Accounting Report' (GPWAR)', and following a consultation and review phase will transition to the Australian Water Accounting Standard (AWAS) . The ED AWAS 1 is currently available from the Bureau of Meteorology website.

The NSW Office of Water is producing GPWARs under the ED AWAS 1 framework on an annual basis, for all the major inland regulated catchments. These reports aim to provide a consolidated and informative summary of the water resource and water management that occurred within the valley for the water period.

This document is a guide to how the information presented in the statements of the NSW Office of Water GPWARs is best interpreted based on hypothetical account information.

NSW Office of Water General Purpose Water Accounting Reports

The current versions of the NSW Office of Water General Purpose Water Accounting Reports contain:

- A contextual statement detailing the climate and water management in place for the reporting period
- A physical flow diagram
- A Statement of Water Assets and Water Liabilities
- A Statement of Change in Water Assets and Water Liabilities
- Disclosures/Notes – A section of notes referenced to line items within the above statements that explain in detail the source of the data, how the number was derived and the expected uncertainty associated with the number. This section also contains an estimate of future resource prospects as detailed by the ED AWAS 1.

Note:

While the draft standard also states requirements for an assurance statement and an accountability statement, the exact content, structure and signoff requirements for these is yet to be confirmed and as such currently the NSW Office of Water is excluding these from its GPWARs. In lieu of the accountability statement the Office of Water is including a signed introduction to the GPWAR by the Commissioner for Water.

Another divergence to the guidance specified in the ED AWAS 1 is that the NSW Office of Water is combining all physical and administrative information into the Statement of Changes in Water Assets and Water Liabilities information as opposed to having the additional Statement of Physical Water flows. All physical components can be easily determined however from both the presentation within the Statement of Changes in Water Assets and Water Liabilities and also the addition of the physical flow diagram.

Contextual Statement

The Exposure Draft of Australian Water Accounting Standards 1 (ED AWAS1) requires a contextual statement to be included in a GPWAR and is defined by the Water Accounting Standards Board (WASB) below:

“The Contextual Statement shall provide information that enables users to understand the physical and administrative aspects of the water report entity. It shall contain contextual information about the water assets and water liabilities of the water report entity, including any conditions that have an impact on the management of those water assets and water liabilities” Paragraph 48 (ED AWAS 1).

In line with this requirement the Office of Water contextual statement for each catchment contains descriptive text, specific to the catchment and water reporting period. This includes:

- A brief catchment description
- A description of the accounted extent of the GPWAR for surface and groundwater
- Climatic information relevant to the annual water reporting period (reports are produced for the NSW water year of July to June)
- Significant flow events
- Management, allocations and trading
- Environmental water.

Accounting basics under ED AWAS 1

Accounting under the ED AWAS 1 adopts a new approach to water accounting and draws significantly on the principles of financial accounting. In fact, the NSW Office of Water is currently using a financial software package to implement double entry accounting and prepare the required water accounting statements.

The fundamental concept for the new form of accounting is the [Water Asset](#) and the [Water Liability](#).

Water Asset

A Water Asset generally refers to physical water that is available to provide future benefit to the accounted extent previously defined in the contextual statement. e.g.

- the volume currently in a dam
- the volume currently in a river.

Physical water that is held within the catchment/accounting area but cannot provide benefit as a whole to meet the system commitments of the defined accounting extent would generally not be considered an asset in the Office of Water GPWARs. e.g. on-farm storage volume, wetlands.

In more complex systems, such as the Murrumbidgee an asset may also be a non-physical volume, such as a claim to water (water that is owed and expected that it can be called upon in the future). As an example if inter-valley trade was considerably higher into the Murrumbidgee than out of the valley, additional demands would be placed on the Murrumbidgee resources, along with a requirement that this additional resource requirement would be corrected in future seasons. The imbalance may therefore be represented as an asset that will derive benefit in the future (in the reverse situation it becomes a liability as described below)

Water Liability

A Water Liability generally refers to a commitment to provide water to a user. The liability would be reduced once the water has been delivered, or if the water is forfeited or traded elsewhere. The most common use of the Water Liability in the Office of Water GPWAR's is to represent the balance of

water in licence holder accounts. e.g. the balance that is still to be delivered in the General Security account as of the reporting date. When the GPWAR is reported for the water year, as with the Office of Water GPWARs, this is in fact the carryover balance.

A water liability may also be used to represent other amounts of water that is owed such as environmental accounts, or an intervalley trade imbalance whereby more water has been traded out than in.

While technically a negative balance for a liability account would be transferred to a positive asset under the ED AWAS 1, the Office of Water GPWARs generally choose to report the liability balance as it stands so that the balance of all accounts can be more clearly interpreted by a user, and the location of data is not changing between reports year to year. The most common reason that a liability account balance would be negative is when more water has been used than is in that account. This volume is a debt that would generally be required to be paid back by the user.

Net Water Asset

The net water asset is a requirement of ED AWAS 1 reporting and aims to give an indication of the true resource situation as of the reporting date. It is a simple calculation of total water assets minus total water liabilities. To maintain the integrity of this figure only 'connected' assets and liabilities should be netted. E.g. Groundwater could not legally be used to settle surface water commitments, and therefore should not be grouped together in the net water asset. As such, the Office of Water GPWARs have a separate net water asset for surface water and groundwater.

Water Accounting Statements

Water Accounting Statement Descriptions

The NSW Office of Water GPWARs provide two main statements and one diagram that define both the balances of the Water Assets and Water Liabilities within the defined accounting extent, and the increase and decreases (changes) that occurred to these throughout the reporting year. These are:

- A physical flows mass balance diagram – a visual representation of physical flows of water, and storage balances for the reporting period
- Statement of Water Assets and Water Liabilities – the balances of the Water Assets and Water Liabilities at the end of the reporting period, and for comparative purposes, the balances of the same Water Assets and Water Liabilities 12 months prior
- Statement of Changes in Water Assets and Water Liabilities- the total increases and decreases of the Water Assets and Water Liabilities for the reporting water year, and for comparative purposes, the total increases and decreases of the same Water Assets and Water Liabilities for the previous 12 month period.

Note Disclosures

Where appropriate, each figure in the Statement of Water Assets and Water Liabilities and Statement of Changes in Water Assets and Water Liabilities is cross-referenced where appropriate to a numerically linked note where detailed information can be found relating to that figure. The information contained in the notes is reported according to the following structure:

- brief description
- data type
- policy
- data accuracy

- providing agency
- data source
- methodology
- additional information (if applicable).

An accuracy code is also provided within the statements to recognise that the data used to account for water movement and management in the reporting entity has been obtained from a variety of sources and systems. The data ranges from observed values where a high accuracy would be anticipated through to modelled results and estimates where accuracy can be highly variable depending on a range of factors. To address the inconsistencies in accuracy and prevent misuse of the data in the accounts, all figures in the Office of Water GPWAR statements will be accompanied by an assessment of accuracy using the key below

Accuracy Code	Description
A1	Data is determined rather than estimated or measured. Therefore the number contains no inaccuracies.
A	Estimated error in the range of +/- 10%
B	Estimated error in the range of +/- 25%
C	Estimated error in the range of +/- 50%
D	Estimated error in the range of +/- 100%

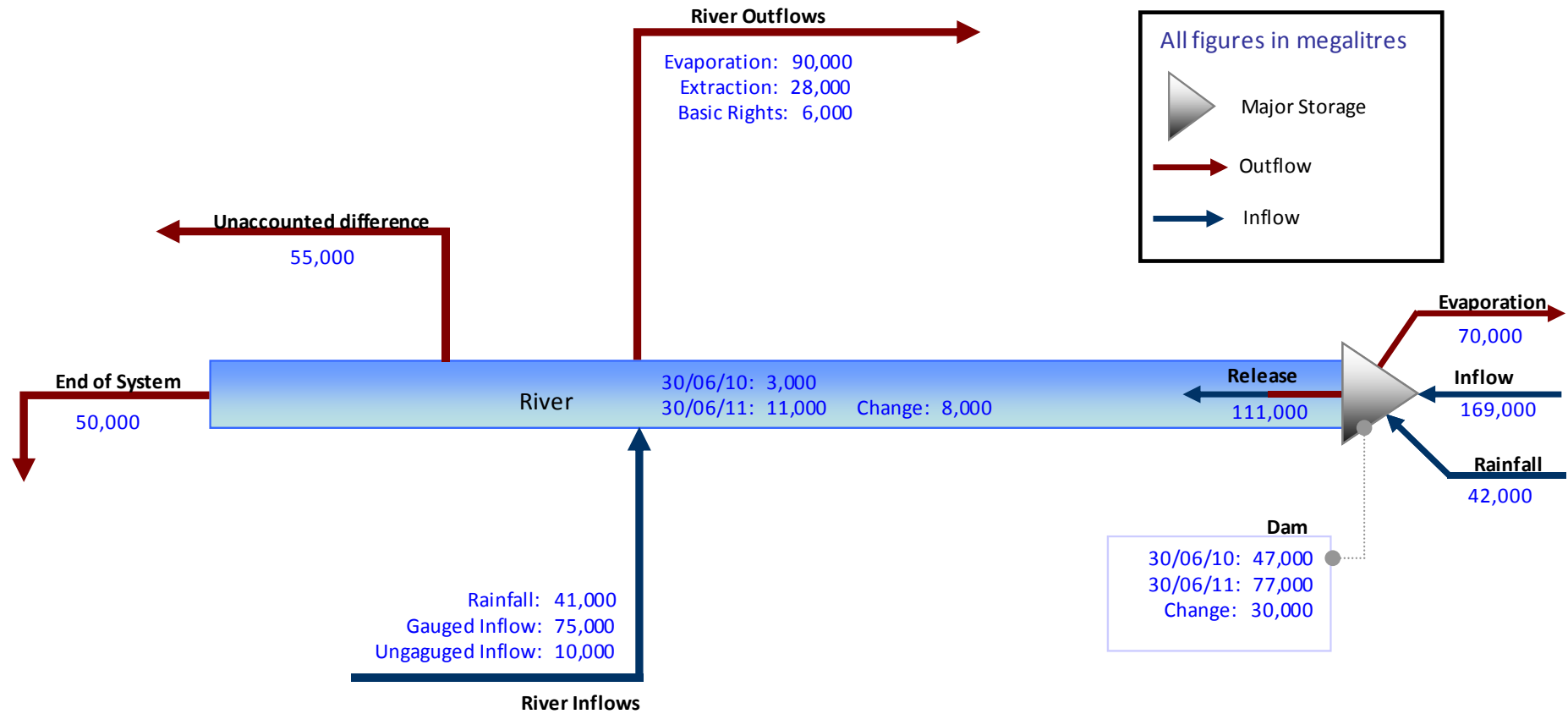
Future Prospects

An estimate of the future prospects for the 12 months proceeding the reporting period of the GPWAR is also included in the notes sections to provide a user with a more realistic assessment of the water resource situation, and the intended uses of what is available. While the net water asset presents a view of the resource situation at the closing of a water year, the future prospects information builds further by not only applying current liabilities, but looking forward 12 months and applying known or estimated increases (e.g. minimum inflows to the storage) or decreases to the available water asset (e.g. dead storage, estimated allocations).

Hypothetical Catchment Example

The following sections builds on the basics described above through a hypothetical example with interpretations of an Office of Water Physical Flow Diagram, Statement of Water Assets and Water Liabilities and Statement of Changes in Water Assets and Water Liabilities and example disclosure note.

Physical flows mass balance diagram



Hypothetical River Catchment

Water Assets and Water Liabilities

For the year ended 30 June 2011



SURFACE WATER ASSETS

	Accuracy	Notes	30 June 2011	30 June 2010
1. Surface Water Storage				
Dam	A	1	77,000	47,000
River			11,000	3,000
Total Surface Water Storage (A_{sws})			88,000	50,000
<i>Change in Surface Water Storage</i>			38,000	22,000

SURFACE WATER LIABILITIES

	Accuracy	Notes	30 June 2011	30 June 2010
2. Allocation Account Balance				
Local Water Utility			0	(10)
General Security			5,000	1,500
High Security			2,000	510
Total Allocation Account Balance (L_{sws})			7,000	2,000
<i>Change in Allocation Account Balance</i>			5,000	1,000

Net Surface Water Assets (A_{sws} - L_{sws})	81,000	48,000
<i>Change in Net Surface Water Assets</i>	33,000	21,000

GROUNDWATER ASSETS AND LIABILITIES

Groundwater has not been included in this GPWAR

Hypothetical River Catchment



Changes in Water Assets and Water Liabilities

For the year ended 30 June 2011

1. Changes in Surface Water Storage (Physical Water Balance)

Surface Water Storage Increases	Accuracy	Notes	2010-11	2009-10
Dam				
Inflow			169,000	40,000
Rainfall			42,000	14,000
River				
Rainfall			41,000	5,000
Inflow from Dam			111,000	45,000
Gauged Inflow			75,000	8,000
Ungauged Inflow			10,000	8,000
Total Surface Water Storage Increases (I_{SWS})			448,000	120,000
Surface Water Storage Decreases				
Dam				
Evaporation			70,000	16,000
Storage Release			111,000	45,000
River				
Evaporation			90,000	21,000
End of System Outflow			50,000	4,000
Licenced Extractions			28,000	9,500
Basic Rights Extractions			6,000	6,000
Total Surface Water Storage Decreases (D_{SWS})			355,000	101,500
Unaccounted Volume (Balancing Item) (U_{SWS})			55,000	(3,500)
Net Surface Water Storage Inflow (I_{SWS} - D_{SWS} - U_{SWS})			38,000	22,000

2. Changes in allocation accounts

Allocation Account Increases	Accuracy	Notes	2010-11	2009-10
Available Water Determinations				
Domestic and Stock			1,000	1,000
Local Water Utility			10,000	6,000
General Security			22,000	7,000
High Security			10,000	5,000
Internal Trade - Buyers			11,000	4,000
Total Allocation Increases (I_{AA})			54,000	23,000

Allocation Account Decreases	Accuracy	Notes	2010-11	2009-10
Account Usage (Total)			28,000	9,500
Account Forfeiture				
Domestic and Stock (D&S)			200	100
Domestic and Stock (Domestic)			100	100
Domestic and Stock (Stock)			700	300
Local Water Utility			9,000	8,000
Internal Trade - Sellers			11,000	4,000
Total Allocation Decreases (D_{AA})			49,000	22,000
Net Allocation Account Balance Increase (I_{AA} - D_{AA})			5,000	1,000

Change in Net Surface Water Assets (I_{SWS} - D_{SWS} - U_{SWS} - I_{AA} + D_{AA})	33,000	21,000
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Hypothetical Catchment Note Disclosures

Future prospects

Hypothetical Catchment: Water assets available to settle water liabilities and future commitments within 12 months of reporting date		(ML)	Note	(ML)
TOTAL WATER ASSETS AS AT 30 June 2011				88,000
Plus: Water Asset increases within 12 months of reporting date				
	Minimum Storage Inflow	30,000		30,000
Less: Water assets not available to be accessed and taken or delivered within 12 months of reporting date.				
	Storage Net Evaporation	25,000		
	Conveyance Loss	30,000		
	Dead Storage	1,000		56,000
Water assets available to be accessed and taken or delivered within 12 months of reporting date.				62,000
Less: Water liabilities and future commitments expected to be settled within 12 months of the reporting date.				
Water Liabilities expected to be delivered within 12 months of reporting date.				
	Surface Water Carryover	35,000		35,000
Future Commitments expected to be delivered within 12 months of reporting date.				
Indicative Allocations and Basic Rights				
	General Security	7,000		
	High Security	5,000		
	Local Water Utility	6,000		
	Domestic and Stock	1,000		
	Basic Rights	6,000		25,000
				60,000
Surplus of available water assets over water liabilities and future commitments expected to be settled within 12 months of the reporting date.				2,000



Note 1 – Dam

This is the physical volume of water stored in the dam of the Hypothetical catchment. The volume is the total volume of water in the storage, including dead storage which is the volume of water which can't be accessed under normal operating conditions e.g. volume below low level outlet. It is assumed that the dead storage can be accessed if required via alternative access methods e.g. syphons.

Data type

Derived from measured data

Policy

Not applicable

Data accuracy

A – Estimated in the range +/- 10%

Providing agency

NSW Office of Water

Data source

NSW Office of Water – HYDSTRA

Methodology

Storage volumes are calculated by processing a gauged storage elevation through a rating table that converts it to a volume.

Additional Information

The following table provides a breakdown of the storage capacities and dead storages. Plots on the following page provide the 2010-11 daily storage volumes and percentages.

Capacity and dead storage summary table

Storage	Capacity (ML)	Dead storage (ML)
Dam	200,000	1,000

Interpretation of Hypothetical Statements

Physical Flow Diagram

The Physical flow mass balance diagram provides the physical aspects of the defined entity for the reporting period including all flows and main storage balances of the system.

The hypothetical physical flows mass balance diagram indicates that the total river inflow (237,000 ML) minus total river outflow (174,000 ML) plus the unaccounted difference (-55,000 ML) gives the overall change of river volume for the reporting period of 8,000 ML.

Similarly the individual balance of the storages is shown in this diagram. For the hypothetical catchment it can be seen that the dam had an opening volume of 47,000 ML, had increases from inflow (169,000 ML) and rain (42,000 ML), and decreases due to evaporation (70,000 ML) and storage releases to the river (111,000 ML). The effect of these process meant the dam held a volume of 77,000 ML at the end of the reporting period, an overall increase of 30,000 ML.

It's important to note the effect of the storage releases in the accounting process is a decrease in the volume of storage asset, and an equal increase to the volume of river asset. In the diagram it is therefore displayed as a combined red/blue arrow.

Statement of Water Asset and Water Liabilities

As previously mentioned, the statement of Water Assets and Water Liabilities provides an assessment of the physical volume water available in storage (water assets). More rarely the water assets may include non-physical volumes that are expected to be available in the future, such as water that is can be called upon and transferred from another water source. This is offset by any present obligations (water liabilities) that are required to be met with the available water assets. Figures from the previous reporting period are also provided to add context as a comparative year. All figures are in megalitres (ML).

In the hypothetical catchment it can be seen that total water assets is the sum of the volume of the dam and river, 88,000 ML and 50,000 ML as of 30 June 2011 and 20 June 2010, respectively. The change between the two reporting periods is therefore an increase in asset of 38,000 ML. The details of this change of 38,000 ML are available in Statement of Changes in Water Assets and Water Liabilities.

The liabilities for the hypothetical catchment are made up entirely of water that has been allocated to specified category of licence, but is yet to be taken at the closing report date. Given that the reporting here coincides with the water year of the hypothetical catchment these volumes are in fact the volumes that will be carried over to the following season. Carryover volumes from 2010/11 (to 2011/12) are 5,000 ML for General Security licence holders and 2,000 ML for High Security holders. The total liability for the Hypothetical catchment as of 30/06/2011 is 7,000 ML.

The net water asset is measured as total water assets minus total water liabilities. For the Hypothetical Catchment this correlates to a net water asset of 81,000 ML (88,000 ML total asset minus 7,000 ML total liabilities).

There have been no groundwater assets and liabilities accounted for in the Hypothetical catchment, however the same concept for physical water assets and liabilities are applicable and would be presented in the same manner.

Statement of Changes in Water Assets and Water Liabilities

The statement of Changes in Water Assets and Water Liabilities is comprised of both physical and non-physical transactions and details how the change (increases and decreases) in net water assets from the Statement of Water Assets and Water Liabilities has occurred. Figures from the previous reporting period are also provided for comparative purposes.

Where the Statement of Water Assets and Water Liabilities presents volumes at a point in time (30 June for the Office of Water GPWARs), the Statement of Changes in Water Assets and Water Liabilities presents total volumes over a period (total) that explain the changes in water assets and water liabilities from one period to the next.

Water asset increases

Water asset increases report all processes that have an increasing effect on the water assets presented in the Statement of Water Assets and Water Liabilities e.g. total gauged inflows (75,000 ML) and total river rainfall (41,000 ML) in 2010-11

Water asset decreases

Water asset decreases report all processes that have a decreasing effect on the water assets presented in the Statement of Water Assets and Water Liabilities e.g. river evaporation (90,000 ML) and total extractions (28,000 ML) in 2011.

Water liability increases

Water liability increases report all processes an increasing effect on the water liabilities presented in the Statement of Water Assets and Water Liabilities e.g. available water determinations increase the amount of water available in the allocation liability accounts (54,000 ML in 2011).

Water liability decreases

Water liability decreases report all processes have a decreasing effect on the water liabilities presented in the Statement of Water Assets and Water Liabilities e.g. forfeited water reduces the amount of water available in the allocation liability accounts (49,000 ML in 2011).

Statements in conjunction

The statement of water assets and water liabilities and the statement of changes in water assets and water liabilities should be read in conjunction in order to have a full understanding of the reported information for the water year. In addition to understanding the nature of the changes that have occurred, the statements contain various cross checks of information to demonstrate that all the accounted processes have been covered and accounted for correctly. For example as shown in the following excerpt it can be seen that change in Surface Water Storage from the Statement of Water Assets and Liabilities (38,000 ML) is equal to the Net Surface Water Storage Inflow on the Statement of Changes in Water Assets and Water Liabilities.

SURFACE WATER ASSETS

1. Surface Water Storage	Accuracy	Notes	30 June 2011	30 June 2010
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River			11,000	3,000
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Storage Release			111,000	45,000
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Basic Rights Extractions			6,000	6,000
Total Surface Water Storage Decreases (D_{sws})			355,000	101,500
Unaccounted Volume (Balancing Item) (U_{sws})			55,000	(3,500)
<i>Net Surface Water Storage Inflow (I_{sws} - D_{sws} - U_{sws})</i>			38,000	22,000

Similarly the change in Allocation accounts and subsequently the change in the Net Water Asset should be able to be reconciled between the two statements presented.

Future Commitments

The future commitments section builds on the concept of the net water asset and provides an informative estimate of the resource situation looking forward, based on known or estimated information. In the Hypothetical Catchment the total water assets at the end of the reporting period was 88,000 ML.

Looking forward to the 12 months ahead it expected that, there will be at least 30,000 ML of inflow arriving in the dam to increase the asset. Of this available asset, 25,000 ML is estimated to be lost via storage evaporation, 30,000 ML will be required to deliver commitments (conveyance) and 1,000 ML is situated in the dead storage zone of the dam and cannot be released under normal delivery operations. Further to this there is 35,000 ML of outstanding commitments (carryover), and an estimated 25,000 ML of allocation that will be added to accounts.

Taking these assumed increases and decreases into account therefore indicates a resource of 2,000 ML in excess of requirements for the next 12 months.