



Diversion Formula Register for the Murray-Darling Basin

A protocol established under paragraph 4(1) (b) to Schedule E (former Schedule F) of the Murray-Darling Basin Agreement for the recording of water diversions from the river system of the Murray-Darling Basin.

Version 5

Approved by MDBA decision D11/32219 – 08 November 2011

History of Register

Register of Diversion Definitions in the Murray-Darling Basin Technical Report 2000–02

Edition 1: August 2001

Edition 2: Approved MDBC Meeting 70 — 10 December 2002

Diversion Formula Register – A protocol established under paragraph 4(1)(b) of Schedule E (former Schedule F) to the Murray-Darling Basin Agreement.

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1. INTRODUCTION

The Cap on diversions agreed by the Murray-Darling Basin Ministerial Council (Council) in 1995 is a critical policy measure to achieve healthy rivers and sustainable consumptive uses. The Cap was finalised in July 1997. The Independent Audit Group (IAG) performed its first audit in June 1998. The IAG concluded that there was a need for “a clear statement of what diversion components (and returns) constitute the cap for a particular valley and that Model development should ensure that all components are simulated” (*Auditing Cap Models under Schedule F, Bewsher Consulting Pty Ltd, October 1998*)

The Council formalised the Cap in August 2000 by adopting Schedule F to the *Murray-Darling Basin Agreement*. Subsequently Schedule E (former Schedule F¹) was amended by the Council in 2008. At the time of adopting Schedule F, the Council agreed to the recommendations of the Review of the Operation of the Cap, which included:

- *all forms of water use be incorporated in Cap management arrangements as they are recognised and can be quantified (Recommendation 12);*
- *diversions from floodplain and overland flows be included in Cap accounting arrangements as a matter of priority (Recommendation 14).*
- *farm dam water use should be included in Cap accounting arrangements as soon as practicable and all future administrative arrangements should support this outcome (Recommendation 15);*
- *water use by tree plantations eventually be considered for inclusion in the Cap where it is found to be significant (Recommendation 16);*

This Register of Diversion Definitions was developed in response to the above decisions.

The role of the Register of Diversion Definitions was formalised as the Diversion Formula Register which was established as a protocol to Schedule E (former Schedule F) of the Murray-Darling Basin Agreement under amendments made to the Schedule at Murray-Darling Basin Ministerial Council Meeting 43 — 12 October 2007. The first version of the Diversion Formula Register was approved by Murray-Darling Basin Commission Meeting 93 — 4 September 2007.

The purposes of the Diversion Formula Register are twofold:

- qualitative - to define in-principle what a diversion is: and
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¹ In 2008, the amended Murray-Darling Basin Agreement was appended to the Commonwealth Water Act 2007. As part of the amendment, Schedule F was renamed as Schedule E.

- quantitative - to provide formulas that define how water diversions from the river system of the Murray-Darling Basin, (see Figure 1), are to be determined and reported for the purposes of the Murray-Darling Basin Cap on diversions.

Chapter 2 of the Register provides the qualitative definition of the diversions.

Chapters 3-6 of the Register provide the formulae for calculating diversions for each of the designated river valleys throughout the Murray-Darling Basin defined under Schedule 1 of Schedule E of the *Murray-Darling Basin Agreement*.

The quantitative formulae given herein are the formulae to be used:

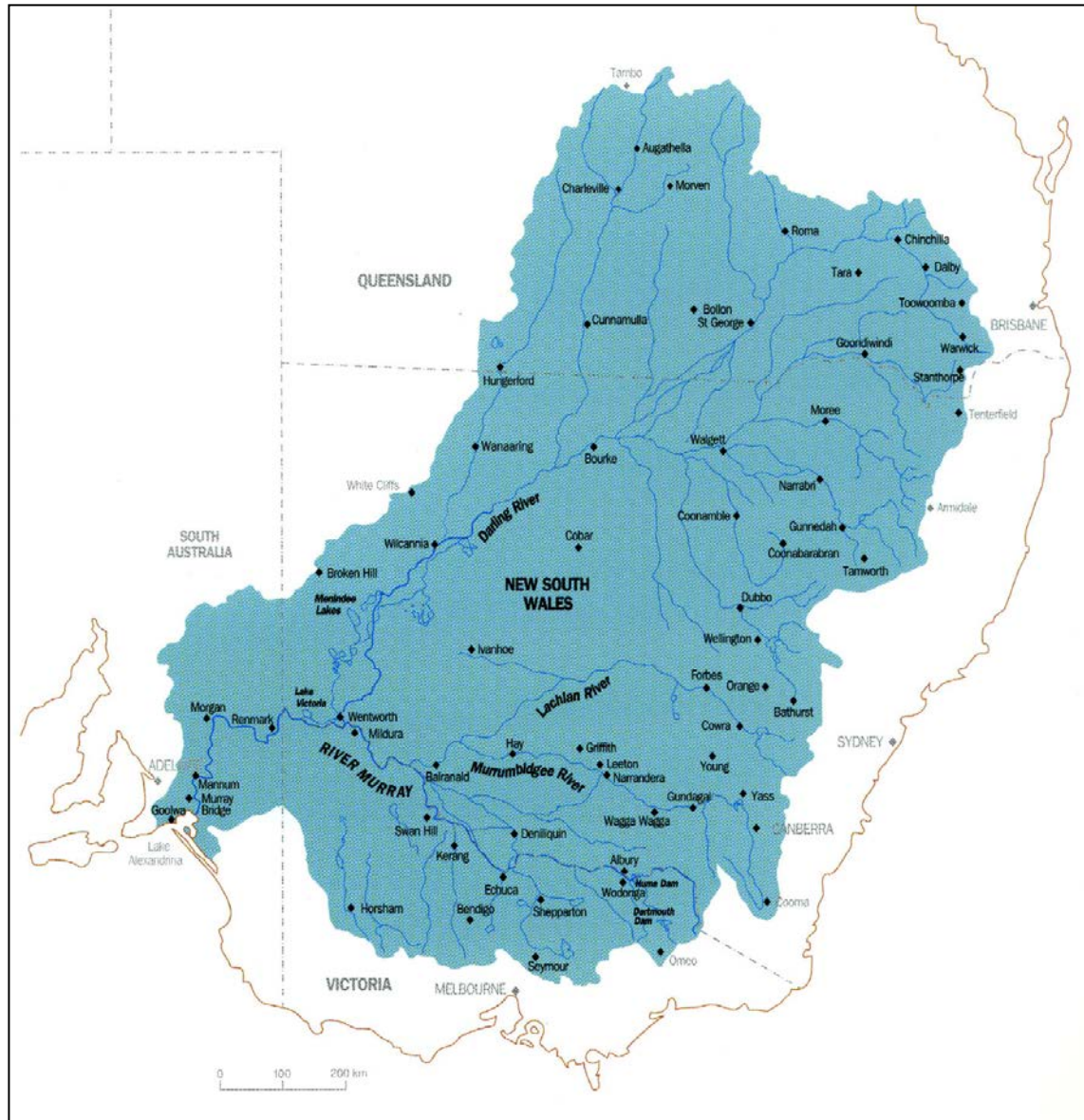
- in determining the volume of water diverted in the relevant valley in any given water year (for current, future and for historical diversion records); and
- in the estimation of diversions in analytical models of river systems that have been developed to determine Cap compliance.

It is envisaged that the Authority will change the diversion formulae from time to time as it becomes practical or important to monitor certain items in more detail. For example, in several instances throughout this Register, system returns (return of water diverted back to the river system), have not been explicitly identified. System returns not already included may be included in future editions of this Register as the Murray-Darling Basin Authority identifies them as being significant.

Because the Authority may amend the Register in the future, this Register is to be quoted where diversions have been calculated using the definitions herein, stating clearly the date of the edition of the Register used (e.g. Version 08 - November 2011).

Appended to this Register is a description of the infrastructure supporting all transfers of water in and/or out of the Murray-Darling Basin (Appendix A).

Figure 1: The Murray-Darling Basin



2. DEFINITION OF DIVERSION

What are diversions?

The term “diversions” includes all forms of consumptive water use which may affect surface water flows.

Diversions may be grouped into two broad categories:

- watercourse diversions; and
- land-surface diversions

These two categories of diversions are illustrated in Figure 2. The total diversion in any valley is the sum of the watercourse diversions and land-surface diversions.

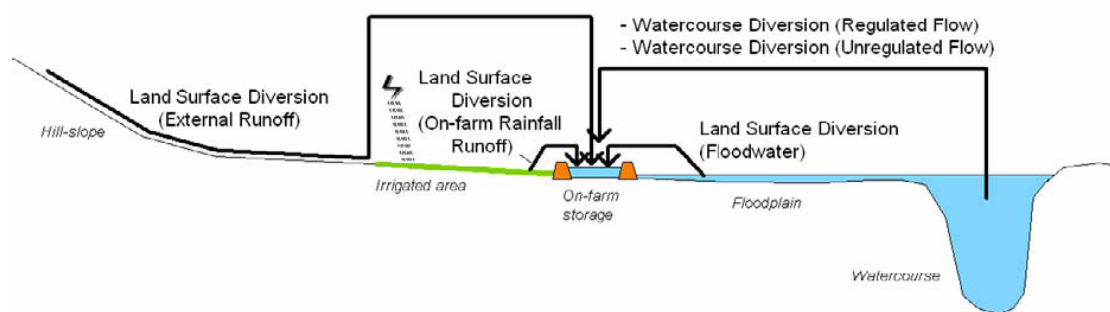


Figure 2 Diversion components (Figure after Bewsher Consulting 2006)

Watercourse diversions:

Watercourse diversions are diversions directly from within the beds and banks of surface water sources eg rivers, streams, creeks, lakes and billabongs either through gravity or pumping. Diversions of this type, both on regulated and unregulated systems in all States, are usually covered by licenses. With some exceptions on the terminology used for different types of rights to surface water diversions, there is little ambiguity on what constitute watercourse diversions. The total watercourse diversion in any valley is the sum of all consumptive diversions which occur directly from the watercourses minus any water returned directly to the watercourses.

Land-surface diversions

Land-surface diversions are all forms of surface water diversions for the purpose of consumptive use, that occur from beyond those which occur by the more traditional licensed extractions from within the beds and banks of surface water courses,(eg rivers, lakes, billabongs).

In essence “land-surface diversions” are all surface water diversions other than the watercourse diversions. The total of land-surface diversions in any valley is the sum of individual components of land-surface diversions, as and when they are recognised and quantified including the following:

- floodplains irrespective of whether such water originated as floodwater; overtopping the banks of a watercourse or was runoff on its way to a watercourse;
- local runoff, irrespective of whether such runoff originated inside or outside a farm, or the bunded areas of a farm;
- interception by hillside farm dams in upland catchments; and

but excluding these diversions:

- direct rainfall onto storages or roofs for rainwater tanks;
- infiltration to groundwater; and
- tail-water (the excess irrigation water that may be collected and returned to the On-Farm Storages).

The components of Land-surface diversions as they are currently understood are illustrated in the following Table. As land-surface diversions form a very significant component of diversions in northern NSW southern Queensland (northern part of the Basin), the Table is illustrated with reference to these two States. However, the concept may apply to all States.

No	Component name	Equivalent term (NSW)	Equivalent term (Queensland)
1	Land-surface diversion (floodwater)	Floodplain harvesting	Overland flow take
2	Land-surface diversion (on-farm rainfall runoff)	Rainfall runoff harvesting	Overland flow take
3	Land-surface diversion (external rainfall runoff)	Overland flow harvesting	Overland flow take

2. NEW SOUTH WALES

2.1 BORDER RIVERS

(includes the NSW portion of the Dumaresq, Macintyre and Barwon River Valleys)

Water year: July to June

Total Diversions =	Σ	(Watercourse Diversions + Land-surface Diversions)
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Where:

Watercourse Diversions =	Σ	(Regulated Irrigation, Stock, Domestic and Miscellaneous Licences + Unregulated Irrigation Licences + Town & Industrial Supplies)
Land-surface Diversions =	Σ	(Land-surface (Floodwater) Diversion by Licensed Pumpers)

Watercourse Diversion Components

Regulated Irrigation, Stock, Domestic and Miscellaneous Licences	=	The sum of all regulated licensed diversions in the NSW portion of the Dumaresq, Macintyre and Boomi River Valleys, as officially recorded in the Database system of the responsible state agency.
		NB: Licenses with entitlements < 20 ML are not required to be metered, and usage may be determined by assessment.
Unregulated Irrigation Licences	=	The sum of all unregulated irrigation licensed diversions in the Dumaresq, Macintyre and Boomi River Valleys. Unregulated irrigation diversions are estimated based on metered information (where available) and surveyed information, as officially recorded in the Database system of the responsible state agency.
Town & Industrial Supplies	=	The sum of all metered licensed diversions for Town & Industrial Supplies in the NSW portion of the Dumaresq, Macintyre and Boomi River Valleys, as officially recorded in the Database system of the responsible state agency.

Land-surface Diversion Components

Land-surface (Floodwater) Diversion by Licensed Pumpers	=	The sum of all the estimated floodplain water harvesting diversions occurring in the NSW portion of the Dumaresq, Macintyre and Boomi River Valleys.
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2.2 INTERSECTING STREAMS

(includes the NSW portion of the Moonie, Big Warrambool, the Culgoa/Birrie/Bokhara/Narran Water Supply System, Warrego and Paroo River Valleys)

Water year: July to June

Total Diversions =	Σ	(Watercourse Diversions + Land-surface Diversions)
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Where:

Watercourse Diversions =	Σ	(Unregulated Irrigation, Stock, Domestic and Miscellaneous Licences)
Land-surface Diversions =	Σ	(Land-surface (Floodwater) Diversion by Licensed Pumpers)

Watercourse Diversion Components

Unregulated Irrigation, Stock, Domestic and Miscellaneous Licences	=	The sum of all unregulated irrigation licensed diversions in the NSW portion of the Moonie, Big Warrambool, Culgoa, Bokhara, Narran, Warrego and Paroo River Valleys. Unregulated irrigation diversions are estimated based on metered information (where available) and surveyed information, as officially recorded in the Database system of the responsible state agency.
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Land-surface Diversion Components

Land-surface (Floodwater) Diversion by Licensed Pumpers	=	The sum of all the estimated floodplain water harvesting diversions occurring in the NSW portion of the Moonie, Big Warrambool, Culgoa, Bokhara, Narran, Warrego and Paroo River Valleys.
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2.3 GWYDIR

Water year: July to June

Total Diversions =	Σ	(Watercourse Diversions + Land-surface Diversions)
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Where:

Watercourse Diversions =	Σ	(Regulated Irrigation, Stock, Domestic and Miscellaneous Licences + Unregulated Irrigation Licences + Town & Industrial Supplies)
Land-surface Diversions =	Σ	(Land-surface (Floodwater) Diversion by Licensed Pumpers)

Watercourse Diversion Components

Regulated Irrigation, Stock, Domestic and Miscellaneous Licences	=	The sum of all regulated licensed diversions in the Gwydir River Valley, as officially recorded in the Database system of the responsible state agency. NB: Licenses with entitlements < 20 ML are not required to be metered, and usage may be determined by assessment.
Unregulated Irrigation Licences	=	The sum of all unregulated irrigation licensed diversions in the Gwydir River Valley. Unregulated irrigation diversions are estimated based on metered information (where available) and surveyed information, as officially recorded in the Database system of the responsible state agency.
Town & Industrial Supplies	=	The sum of all metered licensed diversions for Town & Industrial Supplies in the Gwydir River Valley, as officially recorded in the Database system of the responsible state agency.

Land-surface Diversion Components

Land-surface (Floodwater) Diversion by Licensed Pumpers	=	The sum of all the estimated floodplain water harvesting diversions occurring in the Gwydir River Valley.
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2.4 NAMOI

Water year: July to June

Total Diversions =	Σ	(Watercourse Diversions + Land-surface Diversions)
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Where:

Watercourse Diversions =	Σ	(Regulated Irrigation, Stock, Domestic and Miscellaneous Licences + Unregulated Irrigation Licences + Town & Industrial Supplies)
Land-surface Diversions =	Σ	(Land-surface (Floodwater) Diversion by Licensed Pumpers)

Watercourse Diversion Components

Regulated Irrigation, Stock, Domestic and Miscellaneous Licences	=	The sum of all regulated licensed diversions in the Namoi, Manilla and Peel River Valleys, as officially recorded in the Database system of the responsible state agency. NB: Licenses with entitlements < 20 ML are not required to be metered, and usage may be determined by assessment.
Unregulated Irrigation Licences	=	The sum of all unregulated irrigation licensed diversions in the Namoi, Manilla and Peel River Valleys. Unregulated irrigation diversions are estimated based on metered information (where available) and surveyed information, as officially recorded in the Database system of the responsible state agency.
Town & Industrial Supplies	=	The sum of all metered licensed diversions for Town & Industrial Supplies in the Namoi, Manilla and Peel River Valleys, as officially recorded in the Database system of the responsible state agency.

Land-surface Diversion Components

Land-surface (Floodwater) Diversion by Licensed Pumpers	=	The sum of all the estimated floodplain water harvesting diversions occurring in the Namoi, Manilla and Peel River Valleys.
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2.5 MACQUARIE / CASTLEREAGH / BOGAN

Water year: July to June

Total Diversions =	Σ	(Watercourse Diversions + Land-surface Diversions)
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Where:

Watercourse Diversions =	Σ	(Regulated Irrigation, Stock, Domestic and Miscellaneous Licences + Unregulated Irrigation Licences + Town & Industrial Supplies + Inter-Basin Transfers)
Land-surface Diversions =	Σ	(Land-surface (Floodwater) Diversion by Licensed Pumpers)

Watercourse Diversion Components

Regulated Irrigation, Stock, Domestic and Miscellaneous Licences	=	The sum of all regulated licensed diversions in the Macquarie, Bogan and Cudgegong River Valleys, officially recorded in the Database system of the responsible state agency. NB: Licenses with entitlements < 20 ML are not required to be metered, and usage may be determined by assessment.
Unregulated Irrigation Licences	=	The sum of all unregulated irrigation licensed diversions in the Macquarie, Bogan and Cudgegong River Valleys. Unregulated irrigation diversions are estimated based on metered information (where available) and surveyed information, as officially recorded in the Database system of the responsible state agency.
Town & Industrial Supplies	=	The sum of all metered licensed diversions for Town & Industrial Supplies in the Macquarie, Bogan and Cudgegong River Valleys, as officially recorded in the Database system of the responsible state agency.
Inter-Basin Transfers	=	The sum of all inter-basin transfers from the Fish River Scheme in the Macquarie Valley to Lithgow,

NSW.

Land-surface Diversion Components

<p>Land-surface (Floodwater) Diversion by Licensed Pumpers</p>	<p>= The sum of all the estimated floodplain water harvesting diversions occurring in the Macquarie, Bogan and Cudgegong River Valleys.</p>
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2.6 BARWON / UPPER DARLING AND LOWER DARLING

(the Lower Darling catchment extends from the furthest upstream reach of Menindee Lakes to the furthest upstream reach of the Wentworth Weir Pool)

Water year: July to June

Total Diversions = Σ (Barwon / Upper Darling diversions + Lower Darling diversions)
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Where:

Barwon/Upper Darling Diversions = Σ (Barwon/Upper Darling Watercourse Diversions + Barwon/Upper Darling Land-surface Diversions)

Lower Darling Diversions = Σ (Diversions from Main Stem of Lower Darling River to supply Regulated Irrigation, Stock, Domestic and Miscellaneous Licences (excluding diversions to supply Tandou) + Diversions from Lake System of Lower Darling River to supply Regulated Irrigation, Stock, Domestic and Miscellaneous Licences (excluding diversions to supply Tandou) + Releases from Lake Cawndilla to supply Anabranh Replenishment (which excludes releases for environmental flushing flows and releases to supply Tandou) + Tandou Diversions))

Barwon/Upper Darling Watercourse Diversions = Σ (Unregulated Irrigation, Stock, Domestic and Miscellaneous Licences + Town & Industrial Supplies)
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Barwon/Upper Darling Land-surface Diversions = Σ (Land-surface (Floodwater) Diversion by Licensed Pumpers)

Water course Diversion Components: Barwon/Upper Darling

Unregulated = The sum of all unregulated licensed diversions in the
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Irrigation, Stock, Domestic and Miscellaneous Licences	=	Barwon and Upper Darling River Valleys. Unregulated diversions are estimated based on metered information (where available) and surveyed information, as officially recorded in the Database system of the responsible state agency.
Town & Industrial Supplies	=	The sum of all metered licensed diversions for Town & Industrial Supplies in the Barwon and Upper Darling River Valleys, as officially recorded in the Database system of the responsible state agency.
<i>Land-surface Diversion Components: Barwon/Upper Darling</i>		
Land-surface (Floodwater) Diversion by Licensed Pumpers	=	The sum of all the estimated floodplain water harvesting diversions occurring in the Barwon and Upper Darling River Valleys

Diversion Components: Lower Darling

Diversions from Main Stem of Lower Darling River to supply Regulated Irrigation, Stock, Domestic and Miscellaneous Licences (excluding diversions to supply Tandou)	=	The sum of all regulated licensed diversions from the Main Stem of the Lower Darling from the furthest upstream reach of Menindee Lakes to the furthest upstream reach of the Wentworth Weir Pool (excluding diversions to supply Tandou) and Broken Hill.
Diversions from Lake System of Lower Darling River to supply Regulated Irrigation, Stock, Domestic and Miscellaneous Licences (excluding diversions to supply Tandou)	=	The sum of all regulated licensed diversions from the Lakes: Menindee, Cawndilla, Pamamaroo and Wetherell.
Releases from Lake	=	The sum of all releases from Cawndilla Outlet to

<p>Cawndilla to supply Anabranh Replenishment (which excludes releases for environmental flushing flows and releases to supply Tandou)</p>	<p>supply Anabranh Replenishment (which excludes releases for environmental flushing flows and releases to supply Tandou).</p>
<p>Tandou Diversions</p>	<p>= The sum of all diversions from the following:</p> <ul style="list-style-type: none"> a) Tandou Pumps on the Lower Darling Main Stem; b) Releases from Lake Cawndilla to supply Lake Tandou; and c) Net diversions from Redbank Creek to supply Lake Tandou at times when water flowing overbank from the Darling River can be diverted.

Diversion Sub-Components: Lower Darling

<p>Broken Hill Diversions = The sum of all Broken Hill licensed pumped diversions.</p>

2.7 LACHLAN

Water year: July to June

<p>Total Diversions = Σ (Regulated Irrigation, Stock, Domestic and Miscellaneous Licences + Unregulated Irrigation Licences + Town & Industrial Supplies)</p>
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Where:

Diversion Components

<p>Regulated Irrigation, Stock, Domestic and Miscellaneous Licences</p>	<p>= The sum of all regulated licensed diversions in the Lachlan and Belubula River Valleys, officially recorded in the Database system of the responsible state agency.</p> <p>NB: 1) Licenses with entitlements < 20 ML are not required to be metered, and usage may be determined by assessment; and 2) Excludes diversions from Willandra Creek below the Willandra Homestead flow gauge.</p>
<p>Unregulated Irrigation Licences</p>	<p>= The sum of all unregulated irrigation licensed diversions in the Lachlan and Belubula River Valleys. Unregulated irrigation diversions are estimated based on metered information (where available) and surveyed information, as officially recorded in the Database system of the responsible state agency.</p>
<p>Town & Industrial Supplies</p>	<p>= The sum of all metered licensed diversions for Town & Industrial Supplies in the Lachlan and Belubula River Valleys, as officially recorded in the Database system of the responsible state agency.</p>

2.8 MURRUMBIDGEE

Water year: July to June

Total Diversions = Σ (Regulated Irrigation, Domestic, Stock and Miscellaneous Licences + Lowbidgee Flood Control & Irrigation District Diversions + Unregulated Irrigation Licences + Town & Industrial Supplies)

Where:

Diversion Components

Regulated Irrigation, Stock, Domestic and Miscellaneous Licences = The sum of all regulated licensed diversions (Private Irrigation diversions + Irrigation Corporation diversions) in the Murrumbidgee & Tumut River Valleys and the Yanco Creek & Billabong Creek System, officially recorded in the Database system of the responsible state agency.

NB: Licenses with entitlements < 20 ML are not required to be metered, and usage may be determined by assessment.

Lowbidgee Flood Control & Irrigation District Diversions = The sum of all controlled diversions from Maude Weir (Nimmie Regulator + Cairra Regulator + Northern Cairra Canal) and Redbank Weir (Redbank North: Glen Dee Regulator + Juanbung Regulator + Redbank South: Yanga Regulator + Waugorah Regulator) – diversion returns (Tala Escape + Yanga Escape + Wynburn Escape + Baurpie Escape + Glen Avon Escape).

Unregulated Irrigation Licences = The sum of all unregulated irrigation licensed diversions in the Murrumbidgee & Tumut River Valleys and the Yanco & Billabong Creek Systems. Unregulated irrigation diversions are estimated based on metered information (where available) and surveyed information, as officially recorded in the Database system of the responsible state agency.

Town & Industrial Supplies = The sum of all metered licensed diversions for Town & Industrial Supplies in the Murrumbidgee & Tumut

River Valleys and the Yanco Creek & Billabong Creek Systems, officially recorded in the Database system of the responsible state agency.

Diversion Sub-Components

Irrigation Corporation Diversions = The sum of all licensed diversions of Murrumbidgee Irrigation and Coleambally Irrigation.

Diversion Sub-Components cont/-

Murrumbidgee Irrigation (MIA) Diversions = The sum of all licensed diversions from the Main Canal Offtake (Narrandera Regulator) + Sturt Canal (Sturt Offtake Regulator) – Roach’s Escape – Yanco Main Southern Drain – Gogeldrie Main Southern Drain. Includes all licensed diversions to Yanco Irrigation Area, Mirrool Irrigation Area, Benerembah Irrigation District, Tabbita Irrigation District and Wah Wah Irrigation District.

Colleambally Irrigation (CIA) Diversions = The sum of all licensed diversions from the Colleambally Canal Offtake – Tombulen Storage Offtake – Western Outfall Drain (DC500) – Southern Outfall Drain (DC800) – Colleambally Escape (Catchment Drain)

2.9 MURRAY – NEW SOUTH WALES

Water year: July to June

Total Diversions = Σ (Regulated Irrigation, Stock, Domestic and Miscellaneous Licences + Unregulated Irrigation Licences + Town & Industrial Supplies)

Where:

Diversion Components

Regulated Irrigation, Stock, Domestic and Miscellaneous Licences = The sum of all regulated licensed diversions (Private Irrigation diversions + Irrigation Corporation diversions + Irrigation Trusts and Group Licensed diversions + conjunctive Domestic & Stock diversions) within the NSW portion of the Murray, Edward, Niemur and Wakool Valleys and the Wentworth Weir Pool on the Darling River, officially recorded in the Database system of the responsible state agency.

NB: Licenses with entitlements < 20 ML are not required to be metered, and usage may be determined by assessment.

Unregulated Irrigation Licences = The sum of all unregulated irrigation licensed diversions in the NSW portion of the Murray River Valley. Unregulated irrigation diversions are estimated based on metered information (where available) and surveyed information, as officially recorded in the Database system of the responsible state agency.

Town & Industrial Supplies = The sum of all metered licensed diversions for Town & Industrial Supplies within the NSW portion of the Murray, Edward, Niemur and Wakool Valleys and the Wentworth Weir Pool on the Darling River, officially recorded in the Database system of the responsible state agency.

Diversion Sub-Components

Private Irrigation = The sum of all regulated metered licensed diversions

Diversions		within the NSW portion of the Murray, Edward, Niemur and Wakool Valleys and the Wentworth Weir Pool on the Darling River, officially recorded in the Database system of the responsible state agency.
Irrigation Corporation Diversions	=	The sum of all licensed diversions of Murray Irrigation Ltd and Western Murray Irrigation.

Diversion Sub-Components cont/-

Murray Irrigation Ltd Diversions	=	The sum of Gross Mulwala Canal diversions + Perricoota Pumps – Edward Escape – Wakool Escape – Finley Escape + Wakool Canal diversions – Yallakool escape.
		Includes all licensed diversions to the following Irrigation Districts: Wakool, Tullakool, Deniboota, Denimein and Berriquin.
Western Murray Irrigation Diversions	=	The sum of all licensed diversions to Buronga + Curlwaa + Coomealla.
Irrigation Trusts and Group Licensed Diversions	=	The sum of all licensed diversions from Bama, Bringan, Bungumyah/Koraleigh, Glenview, Goodnight, West Cadell, Bullatale, West Corugan, Merran Creek, Moira & Pomona.

3 VICTORIA

3.1 GOULBURN / BROKEN / LODDON

3.1.1 GOULBURN

Water year: July to June

Total Diversions = Σ (Regulated Irrigation Entitlements + Unregulated Diversion Licences and Supplies by Agreement + Urban Bulk Entitlements + Inter-Basin Transfers)

Where:

Diversions Components

Regulated Irrigation Entitlements = The sum of all diversions to supply regulated irrigation entitlements in the Goulburn River Valley based on hydrographic records, meter readings stored on the Database system of the responsible state agency and estimates where unmetered. These diversions are:

- Directly from the Goulburn River between Lake Eildon and the River Murray; and
- Into East Goulburn Main Channel + Stuart Murray Canal + Cattanach Canal at Goulburn Weir (includes volume supplied for irrigation, to channel urbans and for Domestic & Stock within irrigation districts).

Less water transferred to the Campaspe system via the Goldfields Superpipe at Colbinabbin

Less water transferred to the Murray from the Goulburn Valley Trade Account via:

- East Goulburn Main Channel and Broken Creek and
- Stuart Murray and Cattanach Canals, Waranga Western Channel and Campaspe River

Less water transferred for environmental purposes

		from Goulburn Water Quality Reserve to Broken Creek via East Goulburn Main Channel Less water returned to the Goulburn River from the Stuart Murray Canal
Unregulated Diversion Licences	=	The sum of all unregulated licensed diversions to supply irrigation, Domestic, Stock, Commercial & Industrial in the Goulburn River Valley, based on meter readings stored on the Database system of the responsible state agency and estimates where unmetered.
Supplies by Agreement	=	The sum of diversions by all Supplies by Agreement direct from streams in the Goulburn River Valley, based on meter readings stored on the Database system of the responsible state agency and estimates where unmetered.
Urban Bulk Entitlements (UBE's)	=	The sum of all diversions to supply Regulated River and Unregulated River Urban Bulk Entitlements in the Goulburn River Valley obtained from Urban Water authorities.
Inter-Basin Transfers	=	The sum of all inter-basin transfers from Silver & Wallaby Creeks in the Goulburn River Valley to Yan Yean Reservoir, Victoria.

Diversion Sub-Components

Urban Bulk Entitlements (Regulated River)	=	The sum of all diversions for the following urban centres: Alexandra, Bonnie Doon, Eildon, Mooroopna, Murchison, Nagambie, Seymour, Shepparton, Toolamba and Molesworth obtained from the Urban authorities.
Urban Bulk Entitlements (Unregulated River)	=	The sum of all diversions for the following urban centres: Buxton, Longwood, Mansfield, Marysville, Thornton, Upper Delatite, Woods Point, Broadford/Kilmore/Wallan, Euroa, Melbourne

(Wallaby Creek), Pyalong, Violet Town and Yea
obtained from the Urban authorities.

3.1.2 BROKEN

Water year: July to June

Total Diversions = Σ (Regulated Irrigation Entitlements + Unregulated Diversion Licences and Supplies by Agreement + Urban Bulk Entitlements + Broken Creek Supply)

Where:

Diversion Components

Regulated Irrigation Entitlements	=	The sum of all diversions to supply regulated irrigation entitlements (Upstream of Casey's Weir + Downstream of Casey's Weir) in the Broken River Valley based on meter readings stored on the Database system of the responsible state agency and estimates where unmetered, except diversions from the Broken Creek downstream of Casey's Weir.
Unregulated Diversion Licences	=	The sum of all unregulated licensed diversions to supply irrigation, domestic, stock, commercial & industrial in the Broken River Valley, based on meter readings stored on the Database system of the responsible state agency and estimates where unmetered, except diversions from the Broken Creek downstream of Casey's Weir.
Supplies by Agreement	=	The sum of diversions by all Supplies by Agreement (including Shepparton East Community Water Supply Scheme) direct from streams in the Broken River Valley, (excluding diversions from the Broken Creek) based on meter readings stored on the Database system of the responsible state agency and estimates where unmetered.
Urban Bulk Entitlements (UBE's)	=	The sum of all diversions to supply Regulated River and Unregulated River Urban Bulk Entitlements in the Broken River Valley (but excluding those supplied from the Broken Creek) obtained from Urban Water authorities.
Broken Creek Supply	=	Regulated diversions from Casey's Weir into Broken Creek (excluding environmental releases and flood

flows).

Diversion Sub-Components

Urban Bulk Entitlements (Regulated & Unregulated River) = The sum of all diversions for Benalla urban centre.

3.1.3 LODDON

Water year: July to June

Total Diversions = Σ (Regulated Irrigation Entitlements + Unregulated Diversion Licences and Supplies by Agreement + Urban Bulk Entitlements + Inter-Basin Transfers)

Where:

Diversion Components

Regulated Irrigation Entitlements	=	<p>The sum of all diversions to supply regulated irrigation entitlements in the Loddon River Valley based on hydrographic records, meter readings stored on the Database system of the responsible state agency and estimates where unmetered. These diversions are from:</p> <ul style="list-style-type: none"> • the Loddon River between Cairn Curran Reservoir and Kerang Weir, from Tullaroop Creek downstream of Tullaroop Reservoir, and from Bullarook Creek downstream of Newlyn Reservoir (including diversions from storages); • the Loddon River to the Waranga Western Channel at Loddon Weir; and • the Loddon River to Serpentine Creek.
Unregulated Diversion Licences	=	<p>The sum of all unregulated licensed diversions to supply irrigation, domestic, stock, commercial & industrial in the Loddon River Valley based on meter readings stored on the Database system of the responsible state agency and estimates where unmetered.</p>
Supplies by Agreement	=	<p>The sum of diversions by all Supplies by Agreement (including East Loddon Water Works District) direct from streams in the Loddon River Valley, based on meter readings stored on the Database system of the responsible state agency and estimates where unmetered.</p>
Urban Bulk Entitlements (UBE's)	=	<p>The sum of all diversions to supply Regulated River and Unregulated River Urban Bulk Entitlements in</p>

	the Loddon River Valley obtained from Urban Water authorities.
Inter-Basin Transfers	= The sum of all inter-basin transfers from the following: Newlyn and Cosgrave reservoirs in the Loddon River Valley to Ballarat + Coghills Creek in the Loddon River Valley to Lake Learmonth.

Diversion Sub-Components

Urban Bulk Entitlements (Regulated & Unregulated River)	= The sum of all diversions for the following urban centres: Bridgewater/Inglewood, Clunes, Creswick, Daylesford, Dean, Dunolly/Laanecoorie/Tarnagulla, Jarklin, Maryborough, Newlyn/Springmount, Serpentine and Talbot.
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3.2 CAMPASPE

Water year: July to June

Total Diversions =	Σ	(Regulated Irrigation Entitlements + Unregulated Diversion Licences and Supplies by Agreement + Urban Bulk Entitlements + Inter-Basin Transfers)
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Where:

Diversion Components

Regulated Irrigation Entitlements	=	The sum of all diversions to supply regulated irrigation entitlements in the Campaspe River Valley based on hydrographic records, meter readings stored on the Database system of the responsible state agency and estimates where unmetered. These diversions are: <ul style="list-style-type: none"> • from the Campaspe River between Lake Eppalock and Echuca; • from the Campaspe River to the Campaspe Irrigation District at Campaspe Weir; and • pumped from the Campaspe River to the Waranga Western Channel at the Waranga Western Channel siphon under the Campaspe River.
Unregulated Diversion Licences	=	The sum of all unregulated licensed diversions to supply irrigation, domestic, stock, commercial & industrial in the Campaspe River Valley, based on meter readings stored on the Database system of the responsible state agency and estimates where unmetered.
Supplies by Agreement	=	The sum of diversions by all Supplies by Agreement direct from streams in the Campaspe River Valley, based on meter readings stored on the Database system of the responsible state agency and estimates where unmetered.
Urban Bulk Entitlements (UBE's)	=	The sum of all diversions to supply Regulated River and Unregulated River Urban Bulk Entitlements in the Campaspe River Valley (including all diversions to

the Coliban System and Ballarat from Malmsbury Reservoir & Lake Eppalock and from the Goldfields Superpipe), obtained from Urban Water authorities.

Inter-Basin Transfers = The sum of all inter-basin transfers from the Campaspe Reservoir and Smokers and Falls Creeks in the Campaspe River Valley to Woodend, Victoria.

Diversion Sub-Components

Urban Bulk Entitlements (Regulated & Unregulated River) = The sum of all diversions for the following urban centres: Coliban System (Bendigo, Castlemaine & surrounding towns), Axedale, Goornong, Heathcote, Kyneton/Tylden, Malmsbury, Rochester, Tooboora & Woodend.

3.3 WIMMERA-MALLEE

Water year: July to June

Total diversions =	Σ	Rural Water authority bulk entitlements + Unregulated urban bulk entitlements + Unregulated diversion licences
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Where:

Diversion Components

Rural Water Authority Bulk Entitlements	=	<p>The sum of all diversions taken under Grampian's Wimmera Mallee Water's bulk entitlement to supply regulated domestic and stock, irrigation, commercial, industrial, recreation lakes supply by agreement entitlements and bulk supplies to urban water authorities including any distribution system losses, based on meter readings stored on Grampians Wimmera Mallee Water's data base and estimates where unmetered.</p> <p>(Includes inter-basin transfers from Glenelg river basin. Does not include releases made under the flora and fauna bulk entitlement and Glenelg compensation flows.)</p>
Unregulated Urban Bulk Entitlements	=	<p>The sum of all diversions taken under Grampian's Wimmera Mallee Water's unregulated bulk entitlements to supply towns (Ararat, Great Western, Halls Gap, Moyston and Stawell and Wickliffe, Lake Bolac, Willaura, Buangor and Elmhurst), based on meter readings stored on Grampians Wimmera Mallee Water's database and estimates where unmetered.</p>
Unregulated Diversion Licences	=	<p>The sum of all unregulated licensed diversions to irrigation, stock & domestic, commercial & industrial unregulated licensed diversions in the Avoca, Wimmera and Mallee basins, based on meter readings stored on Grampians Wimmera Mallee Water's database and estimates where unmetered.</p> <p>(Includes unregulated licences on the Wimmera River</p>

downstream of Glenorchy weir)

3.4 KIEWA / OVENS / MURRAY - VICTORIA

3.4.1 KIEWA

Water year: July to June

Total Diversions = Σ (Unregulated Diversion Licences + Supplies by Agreement + Urban Bulk Entitlements)

Where:

Diversion Components

Unregulated Diversion Licences	=	The sum of all unregulated licensed diversions to supply irrigation, domestic, stock, commercial & industrial in the Kiewa River Valley, based on meter readings stored on the Database system of the responsible state agency and estimates where unmetered.
Supplies by Agreement	=	The sum of diversions by all Supplies by Agreement direct from streams in the Kiewa River Valley, based on meter readings stored on the Database system of the responsible state agency and estimates where unmetered.
Urban Bulk Entitlements (UBE's)	=	The sum of all diversions to supply Unregulated River Urban Bulk Entitlements in the Kiewa River Valley obtained from Urban Water authorities.

Diversion Sub-Components

Urban Bulk Entitlements (Unregulated River)	=	The sum of all diversions for the following urban centres: Kiewa/Tangambalanga, Mt Beauty / Tawonga and Yackandandah.
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3.4.2 OVENS

Water year: July to June

Total Diversions = Σ (Regulated Irrigation Entitlements + Unregulated Diversion Licences + Supplies by Agreement + Urban Bulk Entitlements)

Where:

Diversion Components

Regulated Irrigation Entitlements = The sum of all diversions to supply regulated irrigation entitlements in the Ovens River Valley, based on meter readings stored on the Database system of the responsible state agency and estimates where unmetered.

Unregulated Diversion Licences = The sum of all unregulated licensed diversions to supply irrigation, domestic, stock, commercial & industrial in the Ovens River Valley, based on meter readings stored on the Database system of the responsible state agency and estimates where unmetered.

Supplies by Agreement = The sum of diversions by all Supplies by Agreement direct from streams in the Ovens River Valley, based on meter readings stored on the Database system of the responsible state agency and estimates where unmetered.

Urban Bulk Entitlements (UBE's) = The sum of all diversions to supply Regulated River and Unregulated River Urban Bulk Entitlements in the Ovens River Valley obtained from Urban Water authorities.

Diversion Sub-Components

Urban Bulk Entitlements (Regulated & Unregulated River) = The sum of all diversions for the following urban centres: Bright, Beechworth, Glenrowan, Harrierville, Moyhu, Myrtleford, Oxley, Porepunkah, Wangaratta and Whitfield.

MURRAY - VICTORIA

3.4.3(a) MURRAY – UPSTREAM OF HUME DAM TO NYAH

Water year: July to June

<p>Total Diversions = Σ (Regulated Irrigation Entitlements + Unregulated Diversion Licences + Supplies by Agreement + Urban Bulk Entitlements)</p>

Where:

Diversion Components

<p>Regulated Irrigation Entitlements</p>	=	<p>The sum of all diversions to supply regulated irrigation entitlements between the Upper Murray and Nyah in the Victorian portion of the Murray River Valley based on hydrographic records, meter readings stored on the Database system of the responsible state agency and estimates where unmeasured. These diversions are:</p>
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- Regulated licensed irrigation diversions from the Mitta Mitta River between Lake Dartmouth and Lake Hume, and from the Murray between Lake Hume and Nyah;
- Net Murray Valley Irrigation Area diversions;
- Net Torrumbarry System diversions; and
- Diversions to Nyah Irrigation District.

<p>Unregulated Diversion Licences</p>	=	<p>The sum of all unregulated licensed diversions to supply irrigation, domestic, stock, commercial & industrial between the Upper Murray (including Mitta Mitta) and Nyah in the Victorian portion of the Murray River Valley, based on meter readings stored on the Database system of the responsible state agency and estimates where unmeasured.</p>
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<p>Supplies by Agreement</p>	=	<p>The sum of all diversions by all Supplies by Agreement direct from streams between the Upper</p>
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Urban Bulk Entitlements (UBE's)	Murray and Nyah in the Victorian portion of the Murray River Valley, based on meter readings stored on the Database system of the responsible state agency and estimates where unmetered. = The sum of all diversions to supply Regulated River and Unregulated River Urban Bulk Entitlements between the Upper Murray and Nyah in the Victorian portion of the Murray River Valley obtained from Urban Water authorities.
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Diversion Sub-Components

Regulated Licensed Irrigation Diversions	=	The sum of all metered and estimated Licensed Irrigation diversions recorded in the following reaches: Upstream of Hume Dam, Hume Dam to Yarrawonga, Yarrawonga to Barmah, Barmah to Torrumbarry, Torrumbarry to Little Murray Effluence, Little Murray Effluence to Nyah and Little Murray Weir (when Fishpoint Weir is open).
Net Murray Valley Irrigation Area Diversions	=	The sum of all net diversions (Yarrawonga Main Channel + Murray Valley 1 Pump Station - Yarrawonga Main Channel Outfall - Broken Creek Irrigation and Environmental Returns as ordered by MDBA) obtained from hydrographic records and the Database system of the responsible state agency.
Net Torrumbarry System Diversions	=	Gross Torrumbarry System diversions – Net Torrumbarry System Returns.
<i>Where:</i>		
Gross Torrumbarry System Diversions	=	The sum of all diversions recorded at the following locations: National Channel offtake, Ashwins Pumps, Pentel Island Pumps, diversions from the Loddon River downstream of Kerang Weir, Woorinen Pump Station, Swan Hill Pumps, Swan Hill Channel 9 diversion (when Fishpoint Weir open), Lake Boga Inflow from Little Murray weir pool (when Fishpoint Weir is open) and obtained from hydrographic records and the Database system of the responsible state agency. (Note: that Gross Torrumbarry Diversions includes private licensed diversions from the Little Murray upstream of Little Murray Weir when Fishpoint Weir is closed)
Net Torrumbarry System Returns	=	Gross Torrumbarry System Returns – Torrumbarry System Tributary Inflows.
Gross Torrumbarry System Returns	=	The sum of flows recorded at the following locations: Gunbower Creek at Koondrook Spillway, Barr Creek downstream of pumps, Loddon River at Kerang Weir,

Sheepwash Creek Spill, releases of declared unregulated flows from Gunbower Creek for environmental watering of riverine wetlands, flow passing little Murray weir (when Fishpoint Weir closed), 6/7 Channel flow to Little Murray River (when Fishpoint Weir open) Lake Boga outflow (when Fishpoint Weir open) and Lake Charm outfall channel, obtained from hydrographic records and the Database system of the responsible state agency.

Diversion Sub-Components

Torrumbarry System Tributary Inflows	=	The maximum of either: 1) Gross Torrumbarry System Returns – Gross Torrumbarry System diversions; or 2) The sum of the tributary flows recorded at the following locations: Loddon River at Appin South, Mt Hope Creek at Mitiamo, Avoca to Little Murray, Lake Boga Outflow and Barr Creek downstream of pumps, obtained from hydrographic records and the Database system of the responsible state agency.
Nyah Irrigation District Diversions	=	The sum of all diversions pumped to the Nyah Irrigation District based on meter readings stored on the Database system of the responsible state agency.
Urban Bulk Entitlements (Regulated River)	=	The sum of all diversions for the following urban centres: Barmah, Cobram, Echuca, Koondrook, Nyah, Nyah West, Rutherglen/Wahgunyah, Swan Hill, Wodonga and Yarrawonga.
Urban Bulk Entitlements (Unregulated River)	=	The sum of all diversions for the following urban centres: Barnawartha, Bellbridge, Chiltern, Corryong, Cudgewa, Dartmouth, Ebden, Tallangatta, and Walwa.

3.4.3(b) MURRAY - NYAH TO SOUTH AUSTRALIAN BORDER

Water year: July to June

Total Diversions = Σ (Regulated Irrigation Entitlements + Unregulated Diversion Licences + Supplies by Agreement + Urban Bulk Entitlements)
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Where:

Diversion Components

Regulated Irrigation Entitlements	=	The sum of all diversions to supply regulated irrigation entitlements between Nyah and the South Australian Border in the Victorian portion of the Murray River Valley, based on hydrographic records, meter readings stored on the Database system of the responsible state agency and estimates where unmetered. These diversions are: <ul style="list-style-type: none"> • Regulated licensed irrigation diversions between Nyah and the South Australian Border in the Victorian portion of the Murray River Valley including the Lindsay River anabranch; • Diversions to Robinvale Irrigation District; • Diversions to Red Cliffs Irrigation District; • Diversions to Merbein Irrigation District; and • Diversions to Mildura Irrigation District.
Unregulated Diversion Licences	=	The sum of all unregulated licensed diversions to supply irrigation, domestic, stock, commercial & industrial between Nyah and the South Australian Border in the Victorian portion of the Murray River Valley, based on meter readings stored on the Database system of the responsible state agency and estimates where unmetered.
Supplies by Agreement	=	The sum of all diversions by all Supplies by Agreement direct from streams (including diversion to Millewa Rural District and the Northern Mallee Pipeline direct from Murray River) between Nyah and the South Australian Border in the Victorian portion of the Murray River Valley, based on meter readings

stored on the Database system of the responsible state agency, and estimates where unmetred.

Urban Bulk Entitlements (UBE's) = The sum of all diversions to supply Regulated River and Unregulated River Urban Bulk Entitlements between Nyah and the South Australian Border in the Victorian portion of the Murray River Valley obtained from Urban Water authorities.

Diversion Sub-Components

Urban Bulk Entitlements (Regulated & Unregulated River) = The sum of all diversions for the following urban centres: Mildura / Irymple / Merbein, Piangil, Red Cliffs and Robinvale.

3.4.3(c) TOTAL MURRAY - VICTORIA

Water year: July to June

<p>Total Diversions = Σ (Irrigation Entitlements + Supplies by Agreement and Urban Bulk Entitlements)</p>
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NB: This is the sum of all diversions identified in Sections 3.4.3(a) and 3.4.3(b).

Where:

Diversion Components

<p>Irrigation Entitlements</p>	<p>= The sum of all diversions to supply Regulated Irrigation entitlements and Unregulated Licensed diversions between the Upper Murray and the South Australian Border in the Victorian portion of the Murray River Valley.</p>
<p>Supplies by Agreement and Urban Bulk Entitlements</p>	<p>= The sum of all diversions by all Supplies by Agreement and Urban Bulk Entitlements between the Upper Murray and the South Australian Border in the Victorian portion of the Murray River Valley.</p>

4 SOUTH AUSTRALIA

4.1 METROPOLITAN ADELAIDE WATER SUPPLY SCHEME AND ASSOCIATED COUNTRY AREAS

Water year: July to June

Total Diversions	=	The sum of all licensed diversions from Swan Reach No.1 Pump Station + Murray Bridge No.1 Pump Station + Mannum No.1 Pump Station minus any water transported for non-urban supply licensees, obtained from the Database system of the responsible state agency.
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4.2 LOWER MURRAY SWAMPS

Water year: July to June

Total Diversions	=	The sum of all Government and Private Swamp Irrigation licensed diversions in the Mannum to Wellington region, obtained from the Database system of the responsible state agency.
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4.3 COUNTRY TOWNS

Water year: July to June

Total Diversions	=	The sum of all metered diversions from the following urban centres: Renmark, Paringa, Cooltong, Berri, Glossop, Monash, Barmera, Moorook, Kingston, Loxton, Waikerie, Woolpunda (Moorook Country Lands), Cadell, Blanchetown, Cowirra, Jervois, Milang, Morgan No.1 Pump Station, Mypolonga, Pompoota, Swan Reach Water District, Tailem Bend No.1 Pump Station and Wall minus any water transported for non-urban supply licensees, obtained from the Database system of the responsible state agency.
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4.4 WATER USE FOR ALL OTHER PURPOSES FROM THE RIVER MURRAY IN SOUTH AUSTRALIA

Water year: July to June

Total Diversions	=	The sum of all licensed diversions (Pumped Irrigation diversions (metered) + Pumped Irrigation diversions (unmetered) + Recreation & Environmental diversions + Industrial diversions + Stock & Domestic licensed diversions) from the River Murray Prescribed Water Course in South Australia (including water transported by SA Water on behalf of other licensees via the Metro-Adelaide system or Country Town pipelines), obtained from the Database system of the responsible state agency.
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Where:

Diversions Components

Pumped Irrigation Diversions (metered)	=	The sum of all licensed metered Pumped Irrigation diversions (including conjunctive Stock & Domestic diversions) from the River Murray Prescribed Water Course, obtained from the Database system of the responsible state agency.
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Pumped Irrigation Diversions (unmetered)	=	The sum of all unmetered Pumped Irrigation diversions from the River Murray Prescribed Water Course, obtained from the Database system of the responsible state agency.
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NB: Unmetered Pumped Irrigation diversions are derived from known pumped irrigation figures.

Recreational & Environmental Diversions	=	The sum of all metered and unmetered Recreation & Environmental licensed diversions from the River Murray Prescribed Water Course, obtained from the Database system of the responsible state agency.
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Industrial Diversions	=	The sum of all metered and unmetered Industrial licensed diversions from the River Murray Prescribed Water Course, obtained from the Database system of the responsible state agency.
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Stock & Domestic Licensed Diversions	=	The sum of all metered and unmetered (assumed to be equivalent to total allocation) Stock & Domestic licensed diversions not including those which are conjunctive with irrigation licences from the River Murray Prescribed Water Course, obtained from the Database system of the responsible state agency.
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5 QUEENSLAND

5.1 CONDAMINE AND BALONNE

Water year: July to June

Total Diversions =	Σ	(Watercourse Diversions + Land-surface Diversions)
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Where:

Watercourse Diversions =	Σ	(Diversions under the authority of : Supplemented Water Allocations + Unsupplemented Water allocations + Water Licences + Urban Water Entitlements)
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Land-surface Diversions =	Σ	(Overland Flow Diversion)
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Watercourse Diversion Components

Supplemented Water Allocations (excluding water allocations for urban use)	= The sum of all diversions under the authority of supplemented water allocations, excluding those used for urban purposes, in the Upper Condamine, Chinchilla Weir, Maranoa River and St George Water Supply Schemes as provided in reports to the responsible state agency from SunWater, the water service provider for the schemes. Water allocations have the purpose of 'any'.
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Supplemented water allocations are metered and located in the following sections of the catchment: upstream of Chinchilla Weir (Upper Condamine Water Supply Scheme), Chinchilla Weir to Beardmore storage (Chinchilla Weir Water Supply scheme), Maranoa River to Beardmore storage (Maranoa River Water Supply Scheme) and Beardmore storage to the Qld-NSW border (St George Water Supply Scheme).

Note - Water allocations are recorded on the Water Allocation Register.

<p>Unsupplemented Water Allocations (excluding water allocations for urban use)</p>	<p>= The sum of all diversions under the authority of unsupplemented water allocations, excluding those used for urban purposes, in the Queensland section of the Condamine and Balonne catchment. Water allocations have the purpose of 'any'. Unsupplemented water allocations may be 'with no flow conditions' or 'with flow conditions'.</p> <p>Unsupplemented water allocations are partially metered and located in the following sections of the catchment: upstream of Chinchilla Weir, Chinchilla Weir to Beardmore Storage, Maranoa River to Beardmore Storage and Beardmore Storage to the Qld-NSW border. Water allocations are recorded on the Water Allocation Register.</p>
<p>Water Licences (excluding overland flow and urban licences)</p>	<p>= The sum of all diversions under the authority of water licences in the Queensland section of the Condamine and Balonne catchment. This includes:</p> <ul style="list-style-type: none"> • area-based irrigation licences; • stock intensive; • waterharvesting; and • dewatering. <p>Overland flow and town water supply licences are excluded.</p> <p>Water licences are partially metered and located in the following sections of the catchment: upstream of Chinchilla Weir, Chinchilla Weir to Beardmore Storage, Maranoa River to Beardmore Storage and Beardmore Storage to the Qld-NSW border.</p> <p><i>Note -Licences to take water are recorded on the database system of the responsible state agency.</i></p>
<p>Urban Water Entitlements</p>	<p>= The sum of all authorised diversions for urban purposes in the Queensland section of the</p>

Condamine and Balonne catchment.

Urban usage is metered and includes all diversions for urban water supply including the towns of Warwick, Cecil Plains, Toowoomba, Dalby, Chinchilla, and St George.

Usage by Toowoomba and surrounding towns from sources outside the Basin are not included, e.g., Cooby Dam usage only is reported for Toowoomba.

Note -Water allocations are recorded on the Water Allocation Register. Licences to take water are recorded on the database system of the responsible state agency.

Land-surface Diversion Components

Overland Flow Diversion	<p>= The sum of the estimated overland flow take of floodwater and rainfall runoff for irrigation purposes on the Upper Condamine floodplain from upstream of Cecil Plains to Chinchilla + the estimated overland flow take of floodwater and rainfall runoff for irrigation purposes on the Lower Balonne floodplain from Beardmore storage to the Qld-NSW border.</p> <p><i>Note - Estimates are based on the capacity of notified works, rainfall data and information from water entitlement holders.</i></p> <p><i>The take of overland flow water breaking out onto the Lower Balonne floodplain was licensed in April 2010 and metering of works linked to these entitlements is proposed to take place by 2013.</i></p>
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5.2 BORDER RIVERS

(includes the Queensland portion of the Border Rivers)

Water year: July to June

Total Diversions =	Σ	(Watercourse Diversions + Land-surface Diversions)
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Where:

Watercourse Diversions =	Σ	(Diversions under the authority of : Supplemented Water Allocations + Unsupplemented Water Allocations + Water Licences + Urban Water Entitlements)
Land-surface Diversions =	Σ	(Overland Flow Diversion)

Watercourse Diversion Components

Supplemented Water Allocations (excluding water allocations for urban use)	=	<p>The sum of all diversions under the authority of supplemented water allocations, excluding those used for urban purposes, in the Macintyre Brook and Border Rivers Water Supply Schemes as provided in reports to the responsible state agency from the water service providers for the schemes. Water allocations have the purpose of ‘agriculture’ or ‘any’.</p> <p>Supplemented water allocations are metered and located in the following sections of the catchment: Border Rivers, comprising the Dumaresq, Macintyre and Barwon rivers (Border Rivers Water Supply Scheme) and Macintyre Brook (Macintyre Brook Water Supply Scheme),</p> <p>Note - <i>Water allocations are recorded on the Water Allocation Register.</i></p>
Unsupplemented Water Allocations (excluding water allocations for urban use)	=	<p>The sum of all diversions under the authority of unsupplemented water allocations, excluding those used for urban purposes, in the Queensland section of the Border Rivers catchment. Water allocations have the purpose of ‘agriculture’ or ‘any’.</p>

	<p>Unsupplemented water allocations may be 'with no flow conditions' or 'with flow conditions'.</p> <p>Unsupplemented water allocations are metered and located in the following sections of the catchment: Weir River, Border Rivers, comprising the Dumaresq, Macintyre and Barwon rivers, Macintyre Brook, and Severn River.</p> <p><i>Note - Water allocations are recorded on the Water Allocation Register.</i></p>
<p>Water Licences (excluding overland flow and urban licences)</p>	<p>= The sum of all diversions under the authority of water licences in the Queensland section of the Border Rivers catchment. This includes waterharvesting licences authorising the pump down of weirs and area-based irrigation licences.</p> <p>Overland flow and town water supply licences are excluded.</p> <p>Water licences are partially metered and located in the following sections of the catchment: Weir River, Border Rivers, comprising the Dumaresq, Macintyre and Barwon rivers, Macintyre Brook and Severn River.</p> <p><i>Note - Licences to take water are recorded on the database system of the responsible state agency.</i></p>
<p>Urban Water Entitlements</p>	<p>= The sum of all authorised diversions for urban purposes in the Queensland section of the Border Rivers catchment.</p> <p>Urban usage is metered and includes all diversions for the following towns: Inglewood, Stanthorpe, Texas, Yelarbon, Goondiwindi, Toobeah, Bungunya and Talwood.</p> <p><i>Note - Water allocations are recorded on the Water Allocation Register. Licences to take water are recorded on the database system of the responsible state agency.</i></p>

Land-surface Diversion Components

Overland Flow Diversion	=	The sum of the estimated overland flow take of floodwater and rainfall runoff for irrigation purposes in the Queensland section of the Border Rivers catchment.
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Note - Estimates are based on the capacity of notified works and rainfall data.

5.3 MOONIE

Water year: July to June

Total Diversions =	Σ	(Watercourse Diversions + Land-surface Diversions)
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Where:

Watercourse Diversions =	Σ	(Diversions under the authority of : Unsupplemented Water Allocations² + Water Licences + Urban Water Entitlements)
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Land-surface Diversions =	Σ	(Overland Flow Diversion)
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Watercourse Diversion Components

Unsupplemented Water Allocations (excluding water allocations for urban use)	=	The sum of all diversions under the authority of unsupplemented water allocations, excluding those used for urban purposes, from the Queensland section of the Moonie River catchment. Water allocations have the purpose of 'any'. Unsupplemented water allocations may be 'with no flow conditions' or 'with flow conditions'.
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Unsupplemented water allocations are partially metered.

Note - *Water allocations are recorded on the Water Allocation Register.*

Water Licences (excluding overland flow and urban licences)	=	The sum of all diversions under the authority of water licences in the Queensland section of the Moonie River catchment. These licences have the purpose of 'any'.
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Overland flow and town water supply licences are

² There are no supplemented water allocations in the Queensland section of the Moonie River catchment.

excluded.

Water licences are partially metered.

Note - Licences to take water are recorded on the database system of the responsible state agency.

Urban Water Entitlements

= The sum of all authorised diversions for urban purposes in the Queensland section of the Moonie River catchment.

Urban usage is metered and includes all diversions for the town of Thallon.

Note - Water allocations are recorded on the Water Allocation Register. Licences to take water are recorded on the database system of the responsible state agency.

Land-surface Diversion Components

Overland Flow Diversion

= The sum of the estimated overland flow take of floodwater for irrigation purposes in the Queensland section of the Moonie River catchment downstream of Flinton.

Note - Estimates are based on the capacity of notified works, rainfall data and information from water entitlement holders.

5.4 WARREGO

Water year: July to June

Total Diversions =	Σ	(Watercourse Diversions + Land-surface Diversions)
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Where:

Watercourse Diversions =	Σ	(Diversions under the authority of : Supplemented Water Allocations + Unsupplemented Water Allocations + Water Licences + Urban Water Entitlements)
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Land-surface Diversions =	Σ	(Overland Flow Diversion)
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Watercourse Diversion Components

Supplemented Water Allocations (excluding water allocations for urban use)	=	The sum of all diversions under the authority of supplemented water allocations, excluding those used for urban purposes, in the Cunnamulla Water Supply Scheme as provided in reports to the responsible state agency from SunWater, the water service provider for the scheme. Water allocations have the purpose of 'agriculture' or 'any'.
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Supplemented water allocations are metered.

Note -*Water allocations are recorded on the Water Allocation Register.*

Unsupplemented Water Allocations (excluding water allocations for urban use)	=	The sum of all diversions under the authority of unsupplemented water allocations, excluding those used for urban purposes, in the Queensland section of the Warrego River catchment. Water allocations have the purpose of 'any'. Unsupplemented water allocations may be 'with no flow conditions' or 'with flow conditions'.
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Note - *Unsupplemented water allocations are metered. Water allocations are recorded on the Water Allocation Register.*

Water Licences (excluding overland flow and urban licences) = The sum of diversions under the authority of water licences in the Queensland section of the Warrego River catchment. This includes licences to take water for any purpose and an irrigation licence.

Overland flow and town water supply licences are excluded.

Note - Licences to take water are recorded on the database system of the responsible state agency. Diversions are estimated.

Urban Water Entitlements = The sum of all authorised diversions for urban purposes in the Queensland section of the Warrego River catchment.

Urban usage is metered and includes all diversions for the town of Cunnamulla.

Note - Water allocations are recorded on the Water Allocation Register. Licences to take water are recorded on the database system of the responsible state agency.

Land-surface Diversion Components

Overland Flow Diversion = The sum of the estimated overland flow take of floodwater for irrigation purposes in the Queensland section of the Warrego River catchment.

5.5 PAROO

Water year: July to June

Total Diversions =	Σ	(Watercourse Diversions + Land-surface Diversions)
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Where:

Watercourse Diversions =	Σ	(Diversions under the authority of : Unsupplemented Water Allocations³ + Urban Water Entitlements)
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Land-surface Diversions =	Σ	(Overland Flow Diversion)
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Watercourse Diversion Components

Unsupplemented Water Allocations (excluding water allocations for urban use)	=	The sum of all diversions under the authority of unsupplemented water allocations, excluding those used for urban purposes, in the Queensland section of the Paroo River catchment. Water allocations have the purpose of 'any'. Unsupplemented water allocations in the Paroo are 'with no flow conditions'.
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Unsupplemented water allocations are metered.

Note - *Water allocations are recorded on the Water Allocation Register.*

Urban Water Entitlements	=	The sum of all authorised diversions for urban purposes in the Queensland section of the Paroo River catchment.
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Urban diversions are metered and include supply for the township of Hungerford.

Note - *Water allocations are recorded on the Water Allocation Register. Licences to take water are*

³ There are no supplemented water allocations and no water licences (except one urban licence) in the Queensland section of the Paroo River catchment.

recorded on the database system of the responsible state agency.

Land-surface Diversion Components

**Overland Flow
Diversion** = The sum of the estimated overland flow take of floodwater for irrigation purposes in the Queensland section of the Paroo River catchment.

5.6 NEBINE

Water year: July to June

Total Diversions =	Σ	(Watercourse Diversions + Land-surface Diversions)
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Where:

Watercourse Diversions =	Σ	(Diversions under the authority of : Unsupplemented Water Allocations⁴ + Water Licences + Urban Water Entitlements)
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Land-surface Diversions =	Σ	(Overland Flow Diversion)
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Watercourse Diversion Components

Unsupplemented Water Allocations (excluding water allocations for urban use)	=	The sum of all diversions under the authority of unsupplemented water allocations, excluding those used for urban purposes, in the Queensland section of the Nebine River catchment. Water allocations have the purpose of 'any'. Unsupplemented water allocations may be 'with no flow conditions' or 'with flow conditions'.
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Note - Unsupplemented water allocations are partially metered. Water allocations are recorded on the Water Allocation Register.

Water Licences (excluding overland flow and urban licences)	=	The sum of all diversions under the authority of water licences in the Queensland section of the Nebine River catchment. This includes irrigation licences and a licence for 'any' purpose.
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Overland flow and town water supply licences are excluded.

Note - Licences to take water are recorded on the database system of the responsible state agency.

⁴ There are no supplemented water allocations in the Queensland section of the Nebine River catchment.

Diversions are estimated.

Urban Water Entitlements	=	<p>The sum of all authorised diversions for urban purposes in the Queensland section of the Nebine River catchment.</p> <p>Urban diversions are partially metered and include supply for the township of Bollon.</p> <p><i>Note - Water allocations are recorded on the Water Allocation Register. Licences to take water are recorded on the database system of the responsible state agency</i></p>
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Land-surface Diversion Components

Overland Flow Diversion	=	<p>The sum of the estimated overland flow take of floodwater for irrigation purposes in the Queensland section of the Nebine River catchment.</p>
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6 AUSTRALIAN CAPITAL TERRITORY

6.1 MURRUMBIDGEE - AUSTRALIAN CAPITAL TERRITORY

Water year: July to June

Total Net Diversions =	Σ	(Gross Dam Extractions + Unregulated Surface Water Diversions – Gross Returns)
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Where:

Diversions Components

Gross Dam Extractions	=	The sum of the metered dam extractions from Googong Dam (Queanbeyan River), Bendora Reservoir (Cotter River), and the Cotter Reservoir (Cotter River) obtained from the ACT (reported by ACTEW).
Unregulated Surface Water Diversions	=	The sum of the metered licensed diversions within the ACT.
Gross Returns	=	The sum of the metered system gross returns for the following water quality treatment plants: Lower Molonglo Water Quality Control Centre (reported by ACTEW) and Queanbeyan Sewage Treatment Plant (reported by Queanbeyan City Council) obtained from Environment ACT.

GLOSSARY

ACTEW	Australian Capital Territory Electricity & Water Corporation Ltd
anabranh	A diverging branch of a river which re-enters the main stream
announced allocation	The percentage of water entitlement declared available for diversion from a regulated water course in a season
annual allocation	The annual volume of water available for diversion from a regulated water course by an entitlement holder
authorised use	Total of the water allocated in the valley plus off-allocation and water harvesting use plus unregulated stream use not in allocation and system losses not in allocation
bulk entitlement (BE)	A perpetual entitlement to water granted to water authorities by the Crown of Victoria under the Water Act 1989
conjunctive domestic & stock diversions	The domestic and stock diversion component of a regulated irrigation license
diversion	Diversions are all forms of consumptive water use which may affect surface water flows.
diversion licence	specified licences issued for a specified annual volume of water and diversion rate
end-of-valley flows	The flow regime at the end of a valley
Floodplain harvesting or floodplain diversion	The term used in NSW for a component of land-surface diversions to refer to the diversions from the floodplain (extending to 1 in 100 year flood line) of the water that originated as a overflow from the main channel or from the upstream floodplain
G-MW	Goulburn-Murray Rural Water Authority
GR	Grid Reference
gravity districts	districts which use gravity to divert the flow of water from the river
high security entitlement	An entitlement which does not vary from year to year and is expected to be available in all but the worst droughts
IAG	Independent Audit Group for the Cap
Irrigation	Supplying land or crop with water by means of streams,

	channels or pipes
Land surface	Any location away from the bed and banks of a watercourse or a lake/billabong. This includes areas where runoff or overland flows could be ponding or flowing (comprising both designated floodplains and upland areas);
Land-surface diversions	All forms of surface water diversions for the purpose of consumptive use, that occur from beyond the beds and banks of surface water courses,(eg rivers, lakes, billabongs). Floodplain harvesting, overland flow take, overland flow harvesting, rainfall
	runoff harvesting, interception by hillside farms dams or by commercial tree plantations are different components of land-surface diversions
MDBA	Murray-Darling Basin Authority
MDBC	The erstwhile Murray-Darling Basin Commission
MDBMC	Murray-Darling Basin Ministerial Council
Overland flow harvesting	The term used in NSW for a component of land-surface diversions to refer to the diversions from land surfaces located beyond 1 in 100 year flood line
Overland flow take	The term used in Queensland to refer to the diversion of water that runs across the land after rainfall, either before it enters a watercourse, after it leaves a watercourse as floodwater, or after it rises to the surface naturally from underground. This is very close to the term land-surface diversions that refer to all surface water diversions for consumptive purposes, which occur outside the beds and banks of surface water sources (eg rivers, lakes, billabongs).
Private diverters	Licensed to operate privately owned water pumps or diversion channels; includes river pumpers and diverters as well as town water supplies
Rainfall Run-off harvesting or rainfall harvesting	The term used in NSW for a component of land-surface diversions to refer to diversions or interception of rainfall runoff from the areas that have been developed for irrigation
Regulated diversions	Diversions from a regulated stream or waterway
regulated streams/waterways	Streams and waterways where users are supplied by releases from a storage. A water licence for a regulated stream or waterway specifies a base water entitlement defining the licence holder's share of the resources from a water course

SA Water	South Australia Water Corporation
LMW	Lower Murray Urban and Rural Water Authority
Tail-water	Excess irrigation water that may be collected and returned to the On-Farm Storages.
UBE	Urban Bulk Entitlement
unregulated diversions	Diversions from unregulated streams
unregulated streams/waterways	Streams and waterways that are not controlled or regulated by releases from major storages
utilisation	The amount of water available for diversion that is actually diverted
WRP	Water Resources Plan (Queensland) determines what part of the flow regime should be preserved for environmental flows, and what part can be made available for consumptive use
Watercourse diversion	The diversion of water for consumptive purposes from within the beds and banks of surface water courses eg rivers, lakes and billabongs
water entitlement	The legal right of a user to access a specified amount of water in a given period
water harvesting	This term is sometimes used in Queensland to refer to diversion of water from unregulated river systems This term is sometimes used in NSW to describe the combination of floodplain harvesting and rainfall runoff harvesting
GWMWater	Grampians Wimmera-Mallee Water

APPENDIX A

WATER TRANSFER INFRASTRUCTURE IN AND/OR OUT OF THE MURRAY-DARLING BASIN

Table 1: Summary of Inter-Basin Water Transfer Infrastructure

Diversion Scheme	Location	Transfer Direction
Tantangara Reservoir to Lake Eucumbene	NSW	Out of the MDB
Tumut Pond Reservoir ↔ Lake Eucumbene	NSW	In & Out of the MDB
Lake Jindabyne to Geehi Reservoir	NSW	Into the MDB
Fish River Scheme to Lithgow, Blue Mountains	NSW	Out of the MDB
Moora Moora Reservoir to Brimpaen/Laharum	Victoria	Into the MDB
Lake Fyans to Ararat City	Victoria	Out of the MDB
Mt. Cole Reservoir to Ararat City	Victoria	Out of the MDB
First & Second Wannon Creeks to Lake Bellfield	Victoria	Into the MDB
Toolondo Reservoir to Lake Taylor	Victoria	Into the MDB
Silver & Wallaby Creeks to Yan Yean Reservoir	Victoria	Out of the MDB
Newlyn Reservoir to Bacchus Marsh	Victoria	Out of the MDB
Coghills Creek to Lake Learmonth	Victoria	Out of the MDB
Campaspe Reservoir to Woodend	Victoria	Out of the MDB
Morgan to Whyalla	South Australia	Out of the MDB
Swan Reach to Stockwell	South Australia	Out of the MDB
Mannum to Metropolitan Adelaide	South Australia	Out of the MDB
Murray Bridge to Onkaparinga	South Australia	Out of the MDB
Tailem Bend to Keith	South Australia	Out of the MDB
Perseverance Creek Dam to	Queensland	Into the MDB

Toowoomba		
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NEW SOUTH WALES**Tantangara Reservoir to Lake Eucumbene (Snowy Mountains Scheme)**

Date of Completion	:	1961
Capacity	:	1 469 ML/day (536 050 ML/year)
Transfer Type	:	Transfer out of the Murray-Darling Basin
History of Use	:	303 050 ML/year (average of 57% of capacity)
Managing Authority	:	Snowy Mountains Hydro-electric Authority
Geographical Location	:	Snowy Mountains, NSW
Map Reference	:	a) Tantangara Reservoir, 8626 Tantangara (1:100 000), GR 495 410; and b) Lake Eucumbene, 8626 Tantangara (1:100 000), GR 460 205

Tumut Pond Reservoir ↔ Lake Eucumbene (Snowy Mountains Scheme)

Date of Completion	:	1959
Capacity	:	9 789 ML/day (3 572 985 ML/year)
Transfer Type	:	Transfer in & out of the Murray-Darling Basin
History of Use	:	Unknown
Managing Authority	:	Snowy Mountains Hydro-electric Authority
Geographical Location	:	Snowy Mountains, NSW
Map Reference	:	a) Tumut Pond Reservoir, 8526 Yarrangobilly (1:100 000), GR 270 185; and b) Lake Eucumbene, 8626 Tantangara (1:100 000), GR 460 205

Lake Jindabyne to Geehi Reservoir (Snowy Mountains Scheme)

Date of Completion	:	1966
Capacity	:	12 718 ML/day (4 642 070 ML/year)
Transfer Type	:	Transfer into the Murray-Darling Basin
History of Use	:	257 108 ML/year (average of 6% of capacity)
Managing Authority	:	Snowy Mountains Hydro-electric Authority
Geographical Location	:	Snowy Mountains, NSW
Map Reference	:	a) Lake Jindabyne, 8625 Berridale (1:100 000), GR 460 730; and b) Geehi Reservoir, 8525 Kosciusko (1:100 000), GR 184 815

Fish River Scheme (Macquarie River Catchment) to Lithgow, Blue Mountains

Date of Completion	:	1943 to 1964
Capacity	:	Not known
Transfer Type	:	Transfer out of the Murray-Darling Basin
History of Use	:	16,976 ML/year
Major Water Consumers	:	Oberon Council, Greater Lithgow City Council, Delta Electricity & Sydney Water
Major Towns Supplied	:	Oberon, Wallerawang, Lidsdale, Portland, Glen Davis, Rydal, Cullen Bullen & Lithgow
Managing Authority	:	Department of Public Works & Services (Riverina/Western Region)
Geographical Location	:	Macquarie River Valley to Blue Mountains, NSW
Map Reference	:	a) Fish River Scheme, 8831 Bathurst (1:100 000), GR 470 911; and b) Lithgow - Blue Mountains, 8931 Wallerawang (1:100 000), GR 340 910

VICTORIA**Moora Moora Reservoir (Glenelg River Catchment) to Brimpaen/Laharum**

Date of Completion	:	1931
Capacity	:	60 ML/day (21 900 ML/year)
Transfer Type	:	Transfer into the Murray-Darling Basin
History of Use	:	3 000 ML/year (average of 14% of capacity)
Managing Authority	:	Wimmera Mallee Water
Geographical Location	:	Moora Moora Reservoir to Brimpaen/Laharum, Victoria
Map Reference	:	a) Moora Moora Reservoir, 7323 Grampians (1:100 000), GR 260 790; b) Brimpaen, , 7323 Grampians (1:100 000), GR 081 001; and c) Laharum, 7324 Horsham (1:100 000), GR 165 103

Lake Fyans to Ararat City

Date of Completion	:	1950
Capacity	:	8.5 ML/day (3 103 ML/year)
Transfer Type	:	Transfer out of the Murray-Darling Basin
History of Use	:	590 ML/year (average of 19% of capacity)
Managing Authority	:	Wimmera Mallee Water
Geographical Location	:	Lake Fyans to Ararat City, Victoria
Map Reference	:	a) Lake Fyans, 7423 Ararat (1:100 000), GR 440 885; and b) Ararat City, 7423 Ararat (1:100 000), GR 710 720

Mt. Cole Reservoir (Wimmera Catchment) to Ararat City

Date of Completion	:	1904
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Capacity	:	800 ML/day (292 000 ML/year)
Transfer Type	:	Transfer out of the Murray-Darling Basin
History of Use	:	800 ML/year (average of 0.3% of capacity)
Managing Authority	:	Grampians Water
Geographical Location	:	Mt. Cole Reservoir to Ararat City, Victoria
Map Reference	:	a) Mt. Cole Reservoir, 7523 Beaufort (1:100 000), GR 955 713; and b) Ararat City, 7423 Ararat (1:100 000), GR 710 720

First and Second Wannon Creeks (Glenelg River Catchment) to Lake Bellfield

Date of Completion	:	1963
Capacity	:	96 ML/day (35 040ML/year)
Transfer Type	:	Transfer into the Murray-Darling Basin
History of Use	:	1 750 ML/year (average of 5% of capacity)
Managing Authority	:	Wimmera Mallee Water
Geographical Location	:	First and Second Wannon Creeks to Lake Bellfield, Victoria
Map Reference	:	a) First Wannon Creek, 7423 Ararat (1:100 000), GR 370 695; b) Second Wannon Creek, 7423 Ararat (1:100 000), GR 360 688; and c) Lake Bellfield, 7423 Ararat (1:100 000), GR 375 820

Toolondo Reservoir (Glenelg River Catchment) to Lake Taylor

Date of Completion	:	1953
Capacity	:	380 ML/day (138 700 ML/year)
Transfer Type	:	Transfer into the Murray-Darling Basin
History of Use	:	63 000 ML/year (average of 45% of capacity)
Managing Authority	:	Wimmera Mallee Water
Geographical Location	:	Toolondo Reservoir to Lake Taylor, Victoria
Map Reference	:	a) Toolondo Reservoir, 7223 Balmoral (1:100 000), GR 840 030; and b) Lake Taylor, 7324 Horsham (1:100 000), GR 235 290

Silver and Wallaby Creeks (Goulburn Catchment) to Yan Yean Reservoir

Date of Completion	:	1900
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Capacity	:	180 ML/day (65 700 ML/year)
Transfer Type	:	Transfer out of the Murray-Darling Basin
History of Use	:	24 833 ML/year (average of 38% of capacity)
Managing Authority	:	Melbourne Water
Geographical Location	:	Silver & Wallaby Creeks (Tributaries of King Parrot Creek) to Yan Yean Reservoir, Victoria
Map Reference	:	a) Silver Creek, 7923 Yea (1:100 000), GR 440 652; b) Wallaby Creek, 7923 Yea (1:100 000), GR 440 585; and c) Yan Yean Reservoir, 7922 Ringwood (1:100 000), GR 355 420

Newlyn Reservoir (Upper Loddon Catchment) to Bacchus Marsh

Date of Completion	:	1960
Capacity	:	30 ML/day (10 950 ML/year)
Transfer Type	:	Transfer out of the Murray-Darling Basin
History of Use	:	1 500 ML/year (average of 14% of capacity)
Managing Authority	:	Southern Rural Water
Geographical Location	:	Newlyn Reservoir (Birch's Creek) to Bacchus Marsh, Victoria
Map Reference	:	a) Newlyn Reservoir, 7723 Castlemaine (1:100 000), GR 350 555; and b) Bacchus Marsh, 7722 Bacchus Marsh (1:100 000), GR 735 270

Coghills Creek (Upper Loddon Catchment) to Lake Learmonth

Date of Completion	:	1862
Capacity	:	45 ML/day (16 425 ML/year)
Transfer Type	:	Transfer out of the Murray-Darling Basin
History of Use	:	7 300 ML/year (average of 44% of capacity)
Managing Authority	:	City of Ballarat
Geographical Location	:	Coghills Creek to Lake Learmonth, Victoria
Map Reference	:	a) Coghills Creek, 7623 Creswick (1:100 000), GR 380 570; and b) Lake Learmonth, 7623 Creswick (1:100 000), GR 395 535

Campaspe Reservoir to Woodend

Date of Completion	:	1888
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Capacity	:	2 ML/day (730 ML/year)
Transfer Type	:	Transfer out of the Murray-Darling Basin
History of Use	:	370 ML/year (average of 51% of capacity)
Managing Authority	:	Western Water
Geographical Location	:	Campaspe Reservoir (Campaspe River) and Smokers and Falls Creeks to Woodend, Victoria
Map Reference	:	a) Campaspe Reservoir, 7723 Castlemaine (1:100 000), GR 770 620; and b) Woodend, 7823 Woodend (1:100 000), GR 810 623

SOUTH AUSTRALIA
Morgan to Whyalla (twin pipeline)

Date of Completion	:	1944 (initial pipeline), 1962 (second pipeline)
Capacity	:	220 ML/day (80 300 ML/year)
Transfer Type	:	Transfer out of the Murray-Darling Basin
History of Use	:	27 318 ML/year in 1998/99 (34% of capacity)
Managing Authority	:	SA Water
Geographical Location	:	Morgan to Whyalla, SA (see Figure 2)
Map Reference	:	a) Morgan, 6829 Morgan (1:100 000), GR 774 332; and b) Whyalla, 6431 Whyalla (1:100 000)

Swan Reach to Stockwell

Date of Completion	:	1969
Capacity	:	75 ML/day (27 375 ML/year)
Transfer Type	:	Transfer out of the Murray-Darling Basin
History of Use	:	17 068 ML/year in 1998/99 (62% of capacity)
Managing Authority	:	SA Water
Geographical Location	:	Swan Reach to Stockwell, SA (see Figure 2)
Map Reference	:	a) Swan Reach, 6828 Swan Reach (1:100 000), GR 712 738; and b) Stockwell, 6729 Eudunda (1:100 000), GR 210 878

Mannum to Metropolitan-Adelaide

Date of Completion	:	1954
Capacity	:	360 ML/day (131 400 ML/year)

Transfer Type	:	Transfer out of the Murray-Darling Basin
History of Use	:	75 167 ML/year in 1998/99 (57% of capacity)
Managing Authority	:	SA Water
Geographical Location	:	Mannum to Metro-Adelaide, SA (<i>see</i> Figure 2)
Map Reference	:	a) Mannum, 6728 Mannum (1:100 000), GR 450 350; and b) Metro-Adelaide, 6628 Adelaide (1:100 000), GR 810 320

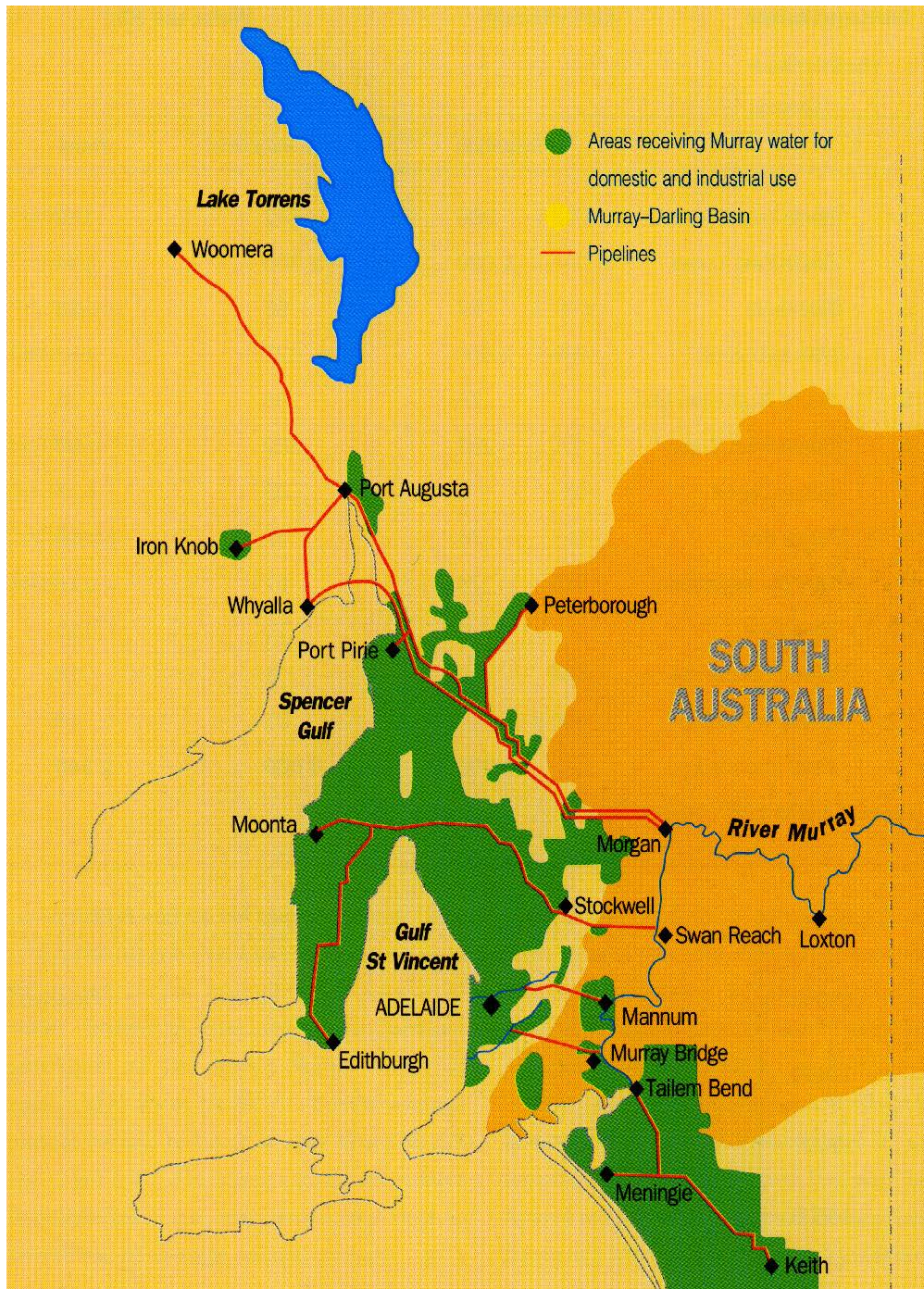
Murray Bridge to Onkaparinga

Date of Completion	:	1973
Capacity	:	510 ML/day (186 150 ML/year)
Transfer Type	:	Transfer out of the Murray-Darling Basin
History of Use	:	61 060 ML/year in 1998/99 (32.8% of capacity)
Managing Authority	:	SA Water
Geographical Location	:	Murray-Bridge to Onkaparinga, SA (see Figure 2)
Map Reference	:	a) Murray Bridge, 6727 Mobilong (1:100 000), GR 420 120; and b) Onkaparinga, 6627 Milang (1:100 000), GR 981 215

Tailem Bend to Keith

Date of Completion	:	1969
Capacity	:	30 ML/day (10 950 ML/year)
Transfer Type	:	Transfer out of the Murray-Darling Basin
History of Use	:	3 097 ML/year in 1998/99 (28% of capacity)
Managing Authority	:	SA Water
Geographical Location	:	Tailem Bend to Keith, SA (see Figure 2)
Map Reference	:	a) Tailem Bend, 6727 Mobilong (1:100 000), GR 597 977; and b) Keith, 6925 Keith (1:100 000), GR 415 050

Figure 2. Inter-Basin transfers in South Australia via pipeline system



QUEENSLAND**Perseverance Creek Dam (Brisbane River Catchment) to Toowoomba**

Date of Completion	:	1967
Capacity	:	68 ML/day (24 820 ML/year)
Transfer Type	:	Transfer into the Murray-Darling Basin
History of Use	:	9 500 ML/year (average of 38% of capacity)
Managing Authority	:	Toowoomba City Council
Geographical Location	:	Perseverance Creek Dam to Toowoomba, Queensland
Map Reference	:	a) Perseverance Creek Dam, 9343 Esk (1:100 000), GR 130 800; and b) Toowoomba, 9242 Toowoomba (1:100 000), GR 966 508