Water security statement for [community]

**Date**

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# The water security statement for [community]

*Provide a high level summary of the current water supply status, including an understanding of current reliability, as well as projections for when additional infrastructure might be required.*

*This section should be completed following the assessment considerations outlined below. It may be determined that this is the only part of the assessment that is published.*

The water supply security position for the community is summarised by:

* key water sources for the community, including entitlements
* a statement about the general historical reliability of the supplies
* historical water demand: total water sourced (average) ML/a for all uses (average L/p/d); residential water use (L/p/d)
* projected future water demand e.g. based on historical water demand it is estimated that by 2039 the community will require up to xx ML/a of water / it is projected that the urban demand will reach approximately xx ML/a by 2039, based on an average demand of X L/p/d.
* water infrastructure maximum capacity and a statement on whether it will need upgrade or augmentation over the assessment period to meet projected growth
* a statement of whether new water supplies will be required to sustain projected growth in the community
* a specification of contingency and emergency supplies – noting the sustainable yield/demand that can be supported and whether additional contingency or emergency supplies could be required if prolonged drought
* an outline target for current water restrictions and whether this is considered achievable by the community
* an outline of any additional water supply security risks identified e.g. water quality
* a comment on the timing to review this assessment, and what might trigger a review

Provide a summary of key moving forward actions, i.e. actions that will be undertaken to improve water supply position of the community (if needed).

Include a graph illustrating the supply and demand balance.

# Introduction

## Scope

*Provide an overview of the assessment process, including the water services considered and the communities serviced.*

## Community overview

*Provide an overview of the community, including the type of water supply and its key industry.*

## Water planning

*Provide information on any existing water security plans, drought management plans, level of service objectives or other objectives and targets for the water supply system for the community.*

*This can be done as a separate section or integrated with section 1.1 or 1.2.*

# Water supply sources

*Describe the water supply sources that provide water for the community. This information contributes to understanding the resilience of the system (knowing the various types of supply, the supply source behaviour and potential supply constraints) and the potential total supply that can be provided.*

## Usual sources

*Provide a description of the water sources (e.g. catchment or aquifer), infrastructure, and reference relevant entitlements and regulations that impact the take of water.*

Table : Water supply sources summary

| **Source** | **Details** | |
| --- | --- | --- |
| XXX Dam/Weir | Location | Close landmark / x km from [town]  OPTIONAL: Latitude and longitude coordinates |
| Watercourse | [water course] (AMTD) |
| Water Plan/Catchment | Part of the [name] water supply scheme / Name of the catchment |
| Owner | Who owns and operates the infrastructure |
| Capacity | X ML |
| Minimum operating level / Minimum operating volume | X m / X ML |
| Entitlement | Type, annual volume, priority group, uses |
| Entitlement conditions | Any conditions that potentially limit the take of water under the entitlement |
| Water quality issues | Any water quality issues/none |
| Significant other users of source | Other users of the supply source |

Notes: 1. Data is sourced from XXX

## Operating philosophy

*Provide details of how the supply is typically operated (i.e. if there is a preferential supply, linkages to other water services etc.).*

## Contingency water supplies

*Provide details of any contingency (i.e. back up) water supplies, whether they are available, planned, or to be investigated further.*

A contingency water supply is a planned response to increase the likelihood that the expected demands on the water service will be met when ‘usual’ supplies are compromised (for example during drought or during infrastructure breakdown). The contingency water supply augments the urban water supply, either temporarily or permanently.

## Emergency water supplies

*Provide details of any emergency water supplies to ensure continuity of water supply, whether it is available, planned or to be investigated further.*

An emergency water supply is a planned response that is temporary and is required to provide sufficient supply to meet highly restricted demand. It is implemented when there is a high likelihood that ‘usual’ supplies will be unable to meet expected demands, or when there are inadequate supplies to meet demands.

Table : Water supplies summary– contingency and emergency supplies

| **Source** | **Details** | |
| --- | --- | --- |
| Water carting | Location | Standpipe - x km from [town] at ….  Latitude and longitude coordinates |
| Water source | Source and level of treatment of water |
| Entitlement | Annual volume, priority group, uses |
| Significant other users of source | [community y]  regional irrigated agriculture |
| YYY Bore/s | Location | Street address  Latitude and longitude coordinates |
| Aquifer | Aquifer name |
| Entitlement | Annual volume, priority group, uses |
| Entitlement conditions | Any conditions that potentially limit the take of water under the entitlement |
| Sustainability / safe yield / vulnerability1 | Comments on sustainability of the aquifer, include the safe yield of the bore and its vulnerability.  Groundwater vulnerability is Low / Moderate / High |
| Water quality issues | Any water quality issues/none |
| Significant other users of source | Other users of the aquifer |

Notes: 1. Groundwater vulnerability is a measure of how easy or how hard it is for pollution or contamination at the land surface to reach a production aquifer.

## Historical reliability of water supply sources

*Provide details of historical storage and supply performance (using historical records of relative changes in volume/flows, capacity to provide supply to communities, etc.). This information contributes to the understanding of the historical behaviour of the system and the potential supply reliability that can be provided to the community.*

## Water quality issues

*Provide an overview of any significant water quality incidents (i.e. that have impacted on supply delivery) that have been reported in the last 5-10 years. This can contribute to information on the source reliability.*

## Recycled water

*Provide information about existing recycled water services and the potential for new or expanded recycled water services that may offset demand on other sources.*

## Other users of the bulk water supply source

*Provide information on other significant uses of the same bulk water supply sources. It can be useful to understand if there are other users that could potentially impact access to water sources in the future. For example, if these other users increase utilisation of existing entitlements such that the supply is drawn down more rapidly and/or frequently and a cut-off is reached earlier.*

# Water infrastructure

## Source, treatment and distribution

*Provide an overview of the source, treatment and distribution network. The limitations on infrastructure capacity can directly impact on the ability to deliver water to customers. Understanding the extent of the reticulation network is also critical to understanding the size of the serviced population, and forms the basis of population and water demand projections.*

Table : Water source and treatment summary

|  |  |
| --- | --- |
| **Activity** | **Details** |
| Raw water delivery | How water is taken from the primary water supply source |
| Treatment, source #1 | Core process units e.g. conventional water treatment with coagulation, sand filtration, UV disinfection and sodium hypochlorite disinfection. |
| Treatment plant capacity | [x] ML/d |
| Treatment, source #2 | Details |
| Storage | X kL treated water storage at the WTP |
| Distribution network | Approximate length of pipe and age of network  Delivery mechanism, e.g. booster pumps / gravity feed  Key elements, e.g. trunk mains connections |

## Water infrastructure historical issues

*Provide overview of any significant issues relating to treatment, storage and distribution that have impacted on supply delivery in the last 5-10 years. This can give an indication of key infrastructure capacity constraints.*

## Asset management

*Provide overview of any infrastructure maintenance or asset management activities that regularly occur, including any planned infrastructure augmentation or replacement.*

# Population

*Describe historical population growth and the potential future population growth, including a range of growth scenarios. Consideration should be given to residential and non-residential growth and projections for regional economic growth. The information gathered will support prediction of future water demands in the community.*

## Historical population serviced by the reticulation network

*Collate historical population data for the serviced community. This will provide a basis for estimating past population growth and past water demand (per person).*

Table : Historical population for [community]

|  |  |  |  |
| --- | --- | --- | --- |
| **As at 30 June** | **Estimated resident population (QGSO)** | | |
| **SA1 community a** | **SA1 community b** | **Total** |
| 20XX |  |  |  |
| 20XX |  |  |  |
| 20XX |  |  |  |

## Future population growth scenarios

*Provide the expected annual percentage increase (or decrease) in population for the community. There may be multiple growth scenarios from different information sources. Where this is the case a number of growth scenarios should be considered.*

## Non-residential customers and itinerant population

*Provide information on past non-residential water customers, and any expected changes in the non-residential customer sector, to use as the basis for growth estimates for this group of customers. Provide actual data if available and include information on any trends or predictions for the future.*

Table : Connections to non-residential properties1

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Non-residential water connections** | **As at 30 June (year)** | | | | | | |
| **20XX** | **20XX** | **20XX** | **20XX** | **20XX** | **20XX** | **20XX** |
|  |  |  |  |  |  |  |

Sourced from SWIM data.

# Water demand and water users

*Provide information on historical water use for the community. Understanding the historical demand can reveal trends of water use behaviour for the community and support development of demand projections for the future.*

*It is also important to understand when restrictions have been in place and what effect these have had on demand.*

## Water demand management

### Current restriction regime

*Describe the current level of water restrictions in place and how long these have been active, including whether the restrictions apply only to residential users or to all users.*

### Historical restrictions

*Describe the history of restrictions for the community for the last 10 years including, where possible, details of duration, severity and effectiveness. This can be useful for future demand management, and analysing historical demand.*

### Education and efficiency programs

*Provide details of any demand management programs that are in place, or that have been implemented historically.*

## Community water demand

*Provide historical records for the community’s water use. Include comments on what may have impacted water demand.*

The key definitions are:

* **Total volume of water sourced**: The total annual volume of water taken from all supply sources (including groundwater, surface water, desalinated water) for subsequent supply via the reticulation network (i.e. subtract any volume of water exported), expressed as ML/a.
* **Average urban water demand**: The total volume of water sourced in the year divided by the serviced population.
* **Average residential water demand**: The total volume of water that is supplied to residential properties from the reticulation network (both metered and estimated volumes) divided by the serviced population.
* **Average non-residential water demand:** The total volume of water that is supplied to non-residential properties from the reticulation network (both metered and estimated volumes) divided by the serviced population. This volume can be significantly affected by itinerant population.
* **Water losses**: Total system losses can be calculated by subtracting the volume of water supplied from the volume of water sourced. Where available provide information on total system losses (i.e. the volume of water sourced minus the volume of water supplied), and its components of real losses (leakage and overflows) and apparent losses (i.e. unauthorised use and metering inaccuracies).

Table : Historical water demand for community

| **Measure** | **Units** | **SWIM Indicator\*** | **…earlier years◊** | **20XX** | **20XX** | **20XX** | **20XX** | **20XX** | **20XX** | **20XX** | **20XX** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Serviced population | # | CS1 |  |  |  |  |  |  |  |  |  |
| Connected properties | # | CS4 |  |  |  |  |  |  |  |  |  |
| ***Water sourced (excluding recycled water*** |  |  |  |  |  |  |  |  |  |  |  |
| Surface | ML/a | WA1 |  |  |  |  |  |  |  |  |  |
| Groundwater | ML/a | WA2 |  |  |  |  |  |  |  |  |  |
| Marine desalination produced | ML/a | WA61 |  |  |  |  |  |  |  |  |  |
| Imported (raw and treated) | ML/a | WA223☺ |  |  |  |  |  |  |  |  |  |
| Exported (raw and treated) | ML/a | WA224☺ |  |  |  |  |  |  |  |  |  |
| Total sourced (raw and treated) | ML/a | WA7 |  |  |  |  |  |  |  |  |  |
| **Water supplied (potable)** |  |  |  |  |  |  |  |  |  |  |  |
| Residential | ML/a | WA32 |  |  |  |  |  |  |  |  |  |
| Non-residential | ML/a | WA34 |  |  |  |  |  |  |  |  |  |
| **Water supplied (non-potable)** |  |  |  |  |  |  |  |  |  |  |  |
| Residential | ML/a | WA91 |  |  |  |  |  |  |  |  |  |
| Non-residential | ML/a | WA92 |  |  |  |  |  |  |  |  |  |
| **Recycled water** |  |  |  |  |  |  |  |  |  |  |  |
| Recycled water produced | ML/a | WA26 |  |  |  |  |  |  |  |  |  |
| Recycled water supplied and exported | ML/a | WA152 |  |  |  |  |  |  |  |  |  |
| **Metrics** |  |  |  |  |  |  |  |  |  |  |  |
| Total water sourced for the service (minus any water exported) | ML/a | WA7-WA224 |  |  |  |  |  |  |  |  |  |
| Total water supplied | ML/a | WA91+WA92+WA32+WA34 |  |  |  |  |  |  |  |  |  |
| Average urban demand | L/p/d | ([WA7-WA224]x1000000) / (CS1x1000) / 365 |  |  |  |  |  |  |  |  |  |
| Average residential demand (average volume supplied to residential customers) | L/p/d | ([WA91+WA32]X1000000) / (CS1x1000) / 365 |  |  |  |  |  |  |  |  |  |
| Average non-residential demand🞎 (average volume supplied to non-residential customers) | L/p/d | ([WA92+WA34]x1000000) / (CS1x1000) / 365 |  |  |  |  |  |  |  |  |  |
| Non-revenue water+ | % | (WA7-WA32-WA34) / WA7 |  |  |  |  |  |  |  |  |  |
| Real and apparent losses | % | (WA7-WA224-AS56) / WA7 |  |  |  |  |  |  |  |  |  |
| Real and apparent losses | L / connected property / day | (AS56x1000000) / (CS4X1000) / 365 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |

\*Refer to qldwater’s SWIM Indicator Handbook (accessed through [www.qldwater.com.au](http://www.qldwater.com.au)) for a full listing of SWIM Indicators

◊ Use data from sources other than SWIM (e.g. water treatment plant records, billing data) to gather as much historical information on the various water metrics.

☺ The current SWIM codes for water imported or exported to another service are WA223 and WA224 respectively. Previously in SWIM it was only reported if the water was imported or exported to another service provider−WA45 (or WA110 excluding recycled water) and WA46 respectively. As it is the water required to meet the needs for a particular water service, information on volumes exported or imported from another service, whether or not it is managed by the same water service provider, is informative. Where this historical information is unknown, the previous codes for volumes imported/exported can be used.

🞎Non-residential includes commercial, municipal and industrial users that source water from the reticulation network

+Non-revenue water is the difference between the volume sourced/extracted (minus any water exported) and the volume supplied. It includes losses from transmission mains, storage facilities, backwash of treatment plants, and water for firefighting, as well as losses such as water theft and metering inaccuracies. Losses might be known by the service provider or can be estimated by comparing data on water sourced or produced with data on water supplied to customers (e.g. billing data).

# Impacts of weather variability and climate change

## Weather information

*Provide historical weather statistics for the time period in which weather data is available, and for the period in which water use data is available.*

Table : Annual rainfall for community (2008-09 to 2019-20)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Location** | **Annual rainfall**  **(mm)** | | | | | |
| **Historical**  (available weather station data) | | | **Period for which there are water use records** (XXXX – YYYY) | | |
| **Lowest** | **Mean** | **Highest** | **Lowest** | **Mean** | **Highest** |
| AAA gauging station (XXXX – YYYY) | mm (year) | mm | mm (year) | mm (year) | mm | mm (year) |

Table : Average monthly rainfall for community (2008-09 to 2019-20)

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| Monthly rainfall (mm) |  |  |  |  |  |  |  |  |  |  |  |  |

## Drought declarations

*Provide further information on usual vs drought conditions for the community.*

## Effect of weather on water use

*Provide analysis of how community water use trends were affected by weather in the past, to support the development of demand projections for future planning scenarios.*

## Climate change

*Identify future changes in temperature, rainfall and evaporation that may impact future water demand and access to climate dependent water supplies (surface and groundwater).*

# Water security assessment

*Provide an assessment of the ability of the system to meet current and future demand for water under a range of scenarios. This should include, as a minimum, a typical conditions scenario and an ongoing drought scenario.*

## Typical conditions scenario

*Provide a demand projection, along with a description of how future water demand was projected. This should be based on business as usual/’normal’ conditions (i.e. ‘normal’ unrestricted demand).*

### Future urban demand

*Provide the projected demand for the community, clearly outlining any assumptions underpinning the projection.*

Table : Summary of key assumptions for demand projections—simple

|  |  |  |
| --- | --- | --- |
| **Scenario** | **Population growth (% p.a.)** | **Total water demand (L/p/d)** |
|  |  |  |

Table : Summary of key assumptions for demand projections—complex

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Scenario** | **Population growth (% p.a.)** | **Residential water demand (L/p/d)** | **Non-residential demand** | **Climate change**  **(% growth in demand p.a.)** |
|  |  |  | Increase by x ML/a in year [20XX] |  |

### The supply and demand balance

*Bring together the water supply information and the demand projection for the community in typical conditions.*

## Ongoing drought scenario

*With consideration to what might be restricted demands during a sustained drought situation and what water supplies might be reliably accessible, provide the water balance. Consider the likely effectiveness of demand management measures and potential impacts on water supply sources, including contingency and emergency water supplies.*

*Note: Such conditions are separate to considerations for operational emergency responses due to infrastructure failure.*

# Moving forward

*Provide a summary of any actions or investigations that are proposed to assist in providing for ongoing water supply security.*

# Definitions

**Contingency supply**

A planned response to increase the likelihood that the expected demands will be met when ‘usual’ supplies are compromised (for example during drought or during infrastructure breakdown). The contingency supply augments the urban water supply, either temporarily or permanently. Examples include new bore, temporary desalination plant, accessing local waterhole, or high volume water carting. Contingency supplies may also include bringing forward planned infrastructure augmentations (dependent on lead times required).

**Drinking water service**

The infrastructure owned by a provider for single or multiple combinations of the individual components of sourcing, treatment, transmission, or reticulation of a drinking water supply.

**Emergency supply**

A planned response that is temporary and is required to provide sufficient supply to meet highly restricted demand. It is implemented when there is a low likelihood that ‘usual’ supplies will be able to meet expected demands or when there are inadequate supplies to meet demands. Examples include low volume water carting, low quality feed water sources (e.g. local waterhole) with high treatment costs, temporary desalination plant. Typically requires significant expenditure of resources.

**Entitlement**

Refers to a water entitlement. A water entitlement is a water allocation, interim water allocation or water licence. Such an entitlement authorises the take or interference with water. Water allocations typically have a priority group. The priority group relates to the water allocation security objective, i.e. provides an indication of the level of reliability of the water allocation, based on historical performance.

**Exported water**

Water that originates from within the service, but is delivered to provide water to another service which may or may not be operated by the same service provider. May be raw water or treated water that is potable or non-potable.

**Imported water**

Water that originates from another water service which may or may not be operated by the same service provider. May be raw water or treated water that is potable or non-potable.

**Non-potable water**

Water that is not intended for use as a drinking water supply, whether it is treated or not.

**Potable water**

Water that is intended for use as a drinking water supply and as such is regulated under the *Water Supply (Safety & Reliability) Act 2008*.

**Raw water**

Untreated surface and/or groundwater either used to directly supply customers of a water service or used as a feed source for a treatment process that supplies customers of a water service. Surface water sourced from marine or brackish environments as a feed for marine desalination is not considered raw water for this purpose. Feed water to recycled water services is not considered raw water.

**Recycled water**

Water that has been sourced from sewage or effluent, from the service provider's infrastructure including urban stormwater, or from wastewater from industrial, commercial or manufacturing activities, or animal husbandry activities, that is intended to be transferred to another unrelated entity for further use and has fit-for-purpose quality.

**Recycled water service**   
The infrastructure owned by a provider for storage, treatment, transmission, and/or reticulation of recycled water.

**Water service**   
Water service to a community, includes water harvesting or collection (including water storages, groundwater extraction or replenishment and river water extraction), the transmission of water, the reticulation of water, drainage (other than stormwater drainage), or water treatment and recycling.

**Water treatment**

Processes such as coagulation, sedimentation, pH correction, filtration, disinfection and softening used to remove particulate matter and contaminants and make the water fit for purpose. Includes advanced treatment process such as reverse osmosis used for desalination of groundwater. Disinfection alone is considered treatment. All potable water must receive some degree of treatment to satisfy the requirements of the *Water Supply (Safety & Reliability) Act 2009*.

# Acronyms

|  |  |
| --- | --- |
| **Acronym** | **Extension** |
| ABS | Australian Bureau of Statistics |
| AMTD | Adopted middle thread distance |
| BOM | Bureau of Meteorology |
| CSS | Customer service standard |
| LOS | Level of service objectives (for water supply security) |
| QGSO | Queensland Government Statistician’s Office |
| ROL | Resource Operations Licence |
| SWIM | State-wide information management (system) |
| WSS | Water security statement |