

# Implementation Review Report

Warrego, Paroo, Bulloo and Nebine  
Water Resource Plan and Resource Operations Plan

November 2013

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# 1 Introduction

This report provides a review of the Water Resource (Warrego, Paroo, Bulloo and Nebine) Water Resource Plan 2003 (water resource plan) and the Warrego, Paroo, Bulloo and Nebine Resource Operations Plan 2006 (resource operations plan). The water resource plan has been in place for 10 years and provides for the sharing of water in the Warrego, Paroo, Bulloo and Nebine catchments in south-west Queensland. Water resource plans are usually replaced after 10 years and this plan was due to expire in 2014. In anticipation of this expiry date, a review of the existing water resource plan and resource operations plan was conducted. The water resource plan expiry date has been postponed in line with all other plans in the Queensland Murray–Darling Basin (QMDB) until 2019 (unless replaced earlier).

The water resource plan has been selected as the first Queensland plan to be accredited under the Murray–Darling Basin Plan (Basin Plan) as it is a part of the QMDB where no further reductions in water entitlements are necessary to meet Basin Plan requirements. The new water resource plan will form part of a ‘package’ of documents which together meet Queensland’s requirements under the Basin Plan.

The purpose of this report is to provide a review of the water resource plan and resource operations plan implementation, inform the community of the ensuing process of developing the new draft plans and to inform key stakeholders and interested parties of key issues that have emerged within the plan area. The report provides:

- background information about the water planning process and the plan area
- an assessment of the effectiveness of the water resource plan and resource operations plan
- identification of key water planning issues to be dealt with under the new draft water resource plan and new draft resource operations plan
- information on the process to develop a new draft water resource plan and new draft resource operations plan.

## 2 Plan area characteristics

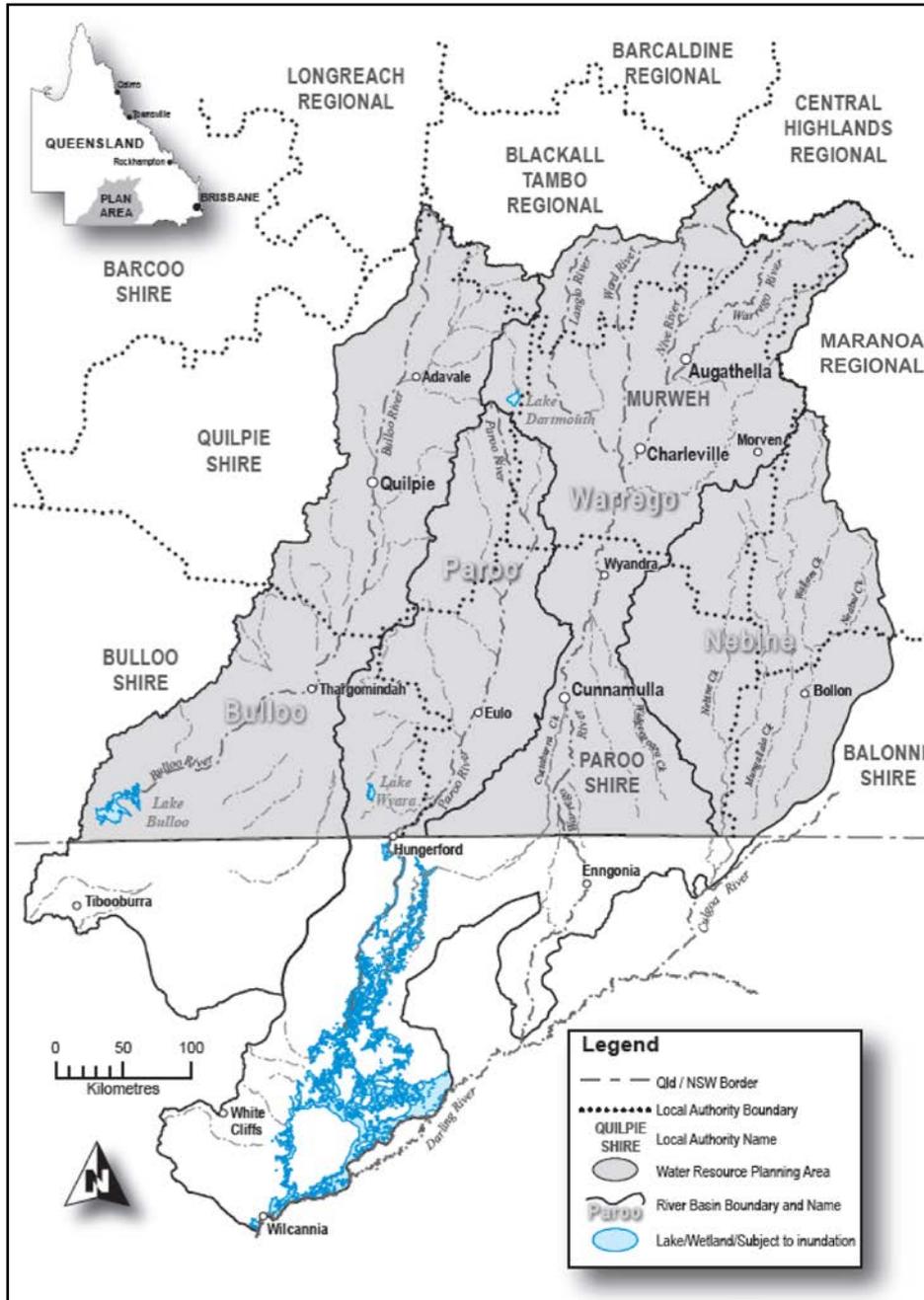
The Warrego, Paroo, Bulloo and Nebine catchments comprise a total area of approximately 253 000 km<sup>2</sup> within Queensland and New South Wales. The plan area for the water resource plan is comprised of the Queensland portions of the Warrego, Paroo, Bulloo and Nebine catchments which cover approximately 190 956 km<sup>2</sup>. The plan area is bounded to the west by the Cooper Creek catchment and by the Condamine and Balonne catchment to the east (figure 1).

The main watercourses include the Warrego River, Paroo River, Bulloo River, Nebine Creek, Wallam Creek and Cuttaburra Creek. The plan area is considered to be an arid region, with rainfall varying widely both spatially and temporally.

Industries in the plan area include beef cattle, wool and to a lesser extent opal mining (Bulloo and Paroo) and natural gas production (Bulloo). There is little surface water resource development in the plan area with a remaining mean annual flow of 99 per cent for the Bulloo and Paroo catchments, 89 per cent for the Warrego catchment and 87 per cent for the Nebine catchment. There is little irrigated cropping consisting primarily of some water extraction for cotton and horticulture such as grapes (Warrego catchment), as well as for cattle fodder crops.

The Cunnamulla Water Supply Scheme (Cunnamulla WSS) on the Warrego River is the only water supply scheme in the plan area and supplies 28 water allocations with a total nominal volume of 2612 ML.

There are 51 unsupplemented water allocations within the plan area with a total nominal volume of 51 112 ML. This volume includes 9000 ML of water held by the Commonwealth Environmental Water Holder under three water allocations.



**Figure 1: Warrego, Paroo, Bulloo and Nebine catchments water resource plan area**

## 3 Water resource planning process

### 3.1 Water resource planning legislative framework

The Queensland *Water Act 2000* (the Act) sets out requirements for the sustainable allocation and management of water resources, including requirements to achieve a balance between water for natural ecosystems and security and reliability of supply to water users. Additionally, recent amendments to the Act provide water for Aboriginal cultural purposes and traditional uses.

Under the Act, the water planning framework consists of two parts:

- The **water resource plan**, which is the Minister's plan, sets the strategic framework for the allocation and sustainable management of an area's water resources
- The **resource operations plan**, which is the Chief Executive's plan, establishes the day-to-day operating rules.

The expiring water resource plans and the associated resource operations plan undergo (under section 40 of the *Water Act 2000*) a thorough pre-planning review process, including a full technical review of the existing plans and a series of preliminary stakeholder consultations. Where he considers it to be necessary, the Minister may also invite formal submissions in relation to matters that need to be addressed by the plans or concerns that people have with the provisions of the existing plans. This formal submission process typically applies to first generation plan development or for existing plans that may need to be substantially changed upon renewal or amendment.

Draft plans will be developed and a public notice will be published to release the draft plans and call for submissions. The submission period allows the community to consider the information contained in the new draft plans and to provide their feedback through written submissions. Following a review of the submissions, the new draft plans will be revised to reflect any policy decisions made in response to issues raised. The final draft plans will be submitted to the Governor-in-Council for approval. The approved water resource plan and resource operations plan will replace the existing plans.

### 3.2 Water resource planning and the Murray–Darling Basin Plan

The Murray–Darling Basin Plan (the Basin Plan<sup>1</sup>) provides an agreed Basin-wide framework to manage the water resources of the MurrayDarling Basin (the basin). On 22 November 2012, the then Commonwealth Minister for Sustainability, Environment, Water, Population and Communities, the Honourable Tony Burke MP, adopted the Basin Plan. The aim of the Basin Plan is to provide more water for the environment while considering the needs of communities and industries that also depend on the water resources of the basin.

There are four water resource plan areas within Queensland that form the QMDB which includes the Condamine and Balonne, Moonie, Border Rivers, and the Warrego, Paroo and Nebine catchments within the plan area. It should be noted that the Bulloo catchment is not part of the QMDB.

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<sup>1</sup> The Basin plan can be sourced from [Basin Plan | Murray–Darling Basin Authority](#)



The first QMDB water resource plan that will be submitted to the Murray–Darling Basin Authority (the authority) for accreditation by the Commonwealth Water Minister is the Warrego-Paroo-Nebine. The Warrego-Paroo-Nebine water resource plan is a pilot project and it is expected that the plan will be accredited in 2016. The accredited water resource plan will consist of a package of existing and proposed Queensland instruments including the new water resource plan and resource operations plan, a Healthy Waters Management Plan and other documents such as technical assessments and consultation reports.

A key component of the Basin Plan is the establishment of long-term sustainable limits for water resource use within the basin. For surface water and groundwater identified in the Basin Plan, sustainable diversion limits (SDL) and baseline diversion limits (BDL) have been defined, where SDL represent the volume of water which can be taken sustainably and BDL represent the current level of use. In catchments where the BDL exceeds the SDL, the Australian Government has committed to recovering the difference through either purchase from willing sellers or funding of efficiency initiatives.

For surface water in the Warrego, Paroo and Nebine catchments, the difference between the BDL and the SDL is zero. This means that there is no surface water volume earmarked for water recovery in the Warrego, the Paroo or the Nebine catchments under the basin plan. Similarly, there cannot be an increase in water allocations above what is currently accounted for in the existing plans. Surface water in the Warrego, Paroo and Nebine is therefore considered to be fully allocated.

Where the SDL exceeds the BDL, additional water can be released for use without impacting on the ecological condition of the resource. This is the case for most groundwater in the plan area, except in the deep portion of the St George Alluvium.

The planning process for the review of the water resource plan and resource operations plan must consider the requirements of the Basin Plan. This includes, but is not limited to, planning for and meeting the requirements on:

- the sustainable use and management of water resources within the long-term annual diversion limits
- groundwater resource management
- environmental watering
- trading of water access rights
- assessing risks to the water resources of the plan area
- Aboriginal values and uses.

Many requirements of the Basin Plan are already met by the current water resource plan and resource operations plan or will be provided in another instrument or document. However, in developing the replacement water resource plan and resource operations plan there will be a need to include provisions for the management of groundwater and stronger recognition of Aboriginal values and uses.

### **3.3 Plan provisions and history**

The water resource plan provided management arrangements for surface water including overland flow. Groundwater has not been managed under the water resource plan.

To achieve outcomes for the sustainable management of water, the plans have provided for the trading of water allocations and have provided for a strategic reserve of unallocated



water. Following the gifting of 9000ML to the Commonwealth Environmental Water Holder, there is a remaining volume of 400ML available for town water supply, ecotourism or similar use (100ML in each catchment) and an additional 500ML for any purpose in the Bulloo catchment.

The plans have not required amendments since commencing except for minor or stated amendments to the water resource plan. For information on plan history, see attachment 1.

## **4 Assessment of plan outcomes**

### **4.1 Technical assessments**

As part of the review of the existing water resource plan and resource operations plan, the following technical assessments were undertaken:

- Hydrologic assessment
- Environmental assessment
- Socioeconomic assessment
- Cultural assessment

These assessments were used to determine how well the plan outcomes were met and to provide recommendations for future water planning in the plan area.

### **4.2 Hydrologic assessment**

Integrated Quantity-Quality Models (IQQM) for the Warrego, Nebine, Paroo and Bulloo were developed to support the development of the existing water resource plan, released in 2003. The models developed were run from 1889 to 1999. These models were used to establish water allocation security objectives for the water allocations and the environmental flow objectives for the water resource plan.

With the development of the next generation of plans, a comprehensive review of all of the previous model's architecture, input data and output capacity was undertaken. The new models were extended to run from 1889 to 2011.

As a result of the hydrological review, a number of enhancements were built into the models, such as the inclusion of data from new gauging stations—two in the Nebine catchment (where previously there were none) and an additional four in the Warrego catchment.

In the Warrego, the key areas of improvement have been in:

- better understanding of how flows are distributed between Cuttaburra Creek and the Warrego River
- better representation of the high flows and losses to floodplains
- more detailed representation of the flows between Wyandra and Cunnamulla, and in the Ward River.

In the Nebine, the two new gauges provide the first on-ground records of the flow in the Nebine even with the short period of record (previous models have been dependent on rainfall runoff models with no in-catchment validation). This improvement will provide a better approximation of the water availability in the Nebine and the level of extractions.

For the Bulloo and Paroo catchments, there was no change in the conceptualisation of the catchment.

A significant flood event across the region was included in the calibrated model period which will provide a better representation of the high flows and losses to floodplains where gauges were available.

## 4.3 Environment

### 4.3.1 Environmental characteristics

The plan area is home to several iconic floodplain plant species and eighteen species of native fish including Murray Cod—listed as vulnerable under the *Environment Protection Biodiversity and Conservation Act*. In the plan area, 57 species of waterbirds have been recorded and the Bulloo Floodplain, Paroo Floodplain, Currawinya Lakes, Lake Numalla and Lake Bindegolly have been identified as nationally or internationally important bird habitats. Many aquatic species use waterholes as their primary habitat or rely on them to survive extended dry spells.

### 4.3.2 Environmental assessment

An asset selection report and a summary of ecological monitoring have been completed. These form the stage 1 environmental assessment that informs the development of the new draft water resource plan and resource operations plan.

The asset selection report identified ecological assets with a critical link to flow and any new ecological information available. A prioritised list of nine assets were identified that represent or support all of the water resource plan ecological outcomes, require a broad range of flow conditions and also address the environmental asset and ecosystem function criteria as set out in the Murray–Darling Basin Plan. They are:

- Active river forming processes including sediment transport
- Flow spawning fish species
- Floodplain terrestrial vegetation species
- *Chelodina longicollis* (eastern snake necked turtle)
- Wetlands (permanent and temporary)
- Absence of exotic fish species
- Genetic diversity of aquatic biota in the Bulloo
- Migratory fish species
- Permanent waterholes

These assets were used to assess the potential ecological impacts of flow managements strategies and rules in the current plans in the subsequent stage 2 environmental assessment process.

The Draft Stage 2 Environmental Assessment Report has identified a low risk to surface water ecological assets from water resource management activities in the plan area. No increase in risk was identified between the pre-development and full entitlement IQQM scenarios for assets modelled in the Bulloo and Paroo catchments.

## 4.4 Socioeconomic assessment

A socioeconomic report has been developed for the review of the water resource plan and resource operations plan. This assessment provides an analysis of socioeconomic conditions and trends associated with economic growth and community water resource requirements in the Warrego, Paroo, Bulloo and Nebine catchments. The assessment also discusses the socioeconomic achievements of the water resource plan, possible socioeconomic implications of key water planning issues in the plan area and proposed recommendations for the new draft water resource plan and new draft resource operations plan.

The major urban centres located in the catchment are Charleville, Cunnamulla and Quilpie. Charleville, the largest of the three major urban centres, is located approximately 750 km west of Brisbane. Most town water supply is sourced from groundwater in the Great Artesian Basin which is managed under the Water Resource (Great Artesian Basin) Plan 2007.

Local governments that fall at least partially within the plan area are: Blackall Tambo Regional Council, Quilpie Shire Council, Paroo Shire Council, Murweh Shire Council and Maranoa Regional Council.

The population was approximately 8200 in 2011 and is home to a significant Aboriginal population (approximately 15 per cent of the total population). Census data shows that between 2001 and 2011, the population of the plan area has increased by approximately 0.47 per cent. The Office of Economic and Statistical Research (2011) forecast that the population is not expected to grow significantly, projecting a population change of between -0.37 per cent and 0.35 per cent by 2031. It is therefore unlikely that water use in urban areas will increase considerably over the life of the new plan.

Unemployment in the plan area has been generally lower when compared to the whole of Queensland. Agriculture is the largest employer in the plan area with around 38 per cent of the working population employed in the sector in 2011.

Agricultural production in the plan area is predominantly grazing, with some broad acre cropping and small pockets of intensively irrigated agricultural production. Livestock production is a key contributor to the economy of the plan area. There is potential for future growth in the agricultural sector, and the ongoing sustainable management of water will be vital to support this industry.

There is limited mining and petroleum activity in the plan area. There is some exploratory activity in the coal seam gas sector with three exploration bores constructed in the plan area in 2010. At this stage, there is no evidence to suggest that the mining sector will seek significantly higher quantities of water over the life of the new plan.



Key characteristics identified:

- A stable population
- Significant Aboriginal population
- Low unemployment
- Strong agricultural sector
- Small mining sector
- Small but emerging tourism sector

Subartesian groundwater will be managed in the new draft water resource plan for the first time. While it is unlikely that significant volumes of groundwater will need to be made available for use, the report recommends that management arrangements should be developed in the new plan and groundwater availability further investigated.

While only a minor part of the overall economy, the tourism industry is undergoing growth in the plan area and consideration should be given to providing water to support the development of this industry either through trading and/or through existing volumes of unallocated water.

The plan area is home to a significant Aboriginal population with a strong history of cultural values and uses of water. Aboriginal values and uses of water in the plan area need to be considered in the review of outcomes and strategies for the new plan.

## 4.5 Cultural assessment

As part of the review of the current water resource plan, DNRM completed a cultural report to document the issues raised by local Aboriginal people.

The plan area is home to a significant population of Aboriginal people comprising approximately 15 per cent of the total population. There are six Aboriginal groups that are located in the plan area. They are:

- Kooma
- Bidjara
- Kunja
- Mardigan
- Budjiti
- Kullilli

Waterholes and streams in the plan area have important cultural values for Aboriginal groups in the region.

Past consultation regarding water planning in the area has identified the Northern Basin Aboriginal Nations (NBAN) and Far South West Aboriginal Natural Resource Management groups as organisations that represent the six Aboriginal groups in the plan area—in conjunction with the Elders from each group.

The report documents cultural values that relate to water in the plan area and includes wetlands, springs, rivers and waterholes as well as cultural artefacts such as fish traps, middens and burial grounds, and culturally significant plants and animals.

It is understood that the value placed on water to Aboriginal people is not restricted to physical sites and items but is all encompassing of the health and function of the environment and broader landscapes.

In recognition of cultural uses of water, recent amendments to the *Water Act 2000* include provisions for Aboriginal groups to take or interfere with water for cultural purposes or traditional activities.

## 4.6 Risk assessments

Three risk assessments were carried out for the Warrego, Paroo, Bulloo and Nebine water resource plan area as part of the review process. These assessments are also consistent with Basin Plan requirements. They are:

- Risk assessment of insufficient water available for surface water and groundwater users
- Risk assessment of insufficient water available for the environment
- Risk assessment of water being of quality unsuitable for use (*Draft Healthy Waters Management Plan for the South West NRM Region of Queensland—Part D Condition assessment and water quality issues*)

The risk assessment methodology used for each assessment was consistent with *AS/NZS ISO 31000:2009 Risk Management—Principles and Guidelines*. Using this method, the level of risk was determined quantitatively using information available from technical assessments, relevant reports and datasets along with expert and local advice provided by Government officers and scientists and representatives from South West NRM Pty Ltd.

All surface water in the plan area was assessed as low risk. Groundwater in the Warrego Alluvium, the Sediments above the Great Artesian Basin and the shallow portion of the St George Alluvium was also assessed as low risk.

Water availability in the St George Alluvium (deep) was assessed to be at risk for both consumptive use and the environment, due to potential growth in take from irrigation and other non-mining activities. The vast majority of the St George Alluvium (deep) underlies the Condamine-Balonne region with only a small portion extending into the plan area. As the aquifer is fully allocated, growth in take is unlikely—however water in the aquifer needs to be carefully managed.

Other risks identified relate to land use impacts on water quality and are therefore not able to be addressed by the water resource plan. Overall risk to water resources in the plan area is low.

## 4.7 Implementation assessment

The water resource plan contains a number of strategies aimed at achieving its specified plan outcomes. These strategies were generally implemented through the resource operations plan.

Technical assessments, risk assessments, data and departmental records were used to assess the achievement of water resource plan outcomes over the life of the plan. All outcomes were achieved. Attachment 2 outlines the relationship between water resource plan outcomes, strategies, resource operations plan rules and the relevant monitoring

associated with each of the plan outcomes. It also summarises an assessment of the achievement of each outcome.

## **5 Consultation**

DNRM has consulted with a number of stakeholders within the plan area to support the assessment of the effectiveness of the water resource plan and resource operations plan and assist in the development of the new draft water resource plan and new draft resource operations plan. Consultation with these and other stakeholders will continue to ensure the key groups with an interest in water resources within the plan area have an opportunity to provide input into the development of the new draft water resource plan and new draft resource operations plan.

### **5.1 SunWater**

DNRM has had preliminary consultation with SunWater regarding rules relating to the operation of Allan Tannock Weir in Cunnamulla and SunWater has been invited to submit any proposed changes to the management and operation of the Cunnamulla Water Supply Scheme for DNRM's consideration.

### **5.2 Water users**

DNRM officers spoke at community meetings in May 2013 held in Quilpie and Thargomindah (Bulloo catchment), Eulo (Paroo Catchment), Charleville and Cunnamulla (Warrego catchment) and Bollon (Nebine catchment). A range of issues were raised by water users including concerns about interstate agreements such as the Basin Plan, a strong interest in retaining the provision of unallocated water under the current plan (and increasing volumes), a desire for the Bulloo to remain free of irrigation and concerns over the effects of mining and coal seam gas on water resources in the plan area.

Some dissatisfaction was voiced from water users regarding the granting of unallocated water to the Australian Government in 2008. There were also concerns regarding the management of the Cunnamulla Water Supply Scheme by SunWater including a request that an early forecast of announced allocations and/or a change in the start date of the water year be implemented to assist growers of permanent plantings (mainly table grapes) to plan for the next season.

A key issue raised by water users (and local authority representatives) was a request that the pass flow requirements at the Allan Tannock Weir be reviewed. Currently, the resource operations plan requires that water be released downstream within one month of inflows for stock and domestic use. However, the opinion was raised that the current arrangements did not provide any measurable benefit to stock and domestic users downstream of the weir, and greater benefit could be achieved through a management arrangement where the pass flow volume could be stored and released at a later stage for targeted outcomes.

This issue has also been raised by SunWater and will be reviewed in full once a schedule of proposed changes from SunWater has been received by DNRM.



### 5.3 Aboriginal groups

The Northern Basin Aboriginal Nations (NBAN) and Far South West Aboriginal Natural Resource Management Group represent Aboriginal groups in the plan area, in conjunction with the Elders from each group.

The department met with NBAN on April 19, 2013 to discuss catchment issues and engagement strategies for Aboriginal input to the plan review.

A meeting of the Traditional Owners and departmental officers to discuss the review of the plans was held on May 24, 2013 in Charleville and was attended by representatives of the Aboriginal groups in the plan area. Requests from the traditional owners included:

- tradeable groundwater be made available specifically for Aboriginal use for both cultural and economic purposes
- water be available at no cost (fees waived)
- existing unallocated surface water to be made exclusively available for Aboriginal use (both economic and cultural use)
- fishways to be installed on weirs.

### 5.4 South West Natural Resource Management and local government

South West Natural Resource Management Ltd (South West NRM) is a community-based organisation and the designated regional body for natural resource management in south-west Queensland. The organisation works with the community, Landcare groups, Traditional Owners, local government and industry groups to achieve sustainable natural resource management.

South West NRM has been invited to provide input on all stages of the plan review process and representatives also attended all community consultations. Their local expertise was recognised and DNRM engaged South West NRM as consultants to facilitate the Traditional Owners Engagement Meeting held on 24 May 2013. No specific issues have been raised by South West NRM and they support the proposal to use the standard pathway under the single process framework to develop the new draft water resource plan and new draft resource operations plan.

Local government representatives were invited to community consultation meetings throughout the plan area and will continue to be included in further consultations.

### 5.5 Peak Body (Water) Consultation Group

The Peak Body (Water) Consultation Group consists of representatives from key industry and community stakeholder groups with urban or rural interests in water issues in Queensland. This group provides a forum for broad stakeholder input to water policy and is able to offer high level advice on water planning issues. A meeting was held on the August 12, 2013 with the group to discuss the review of the current water resource plan and resource operations plan and the proposed approach for developing the new plans.

Invitees included representatives from AgForce, Irrigation Australia, Queensland Farmers Federation, World Wildlife Fund, SunWater, Qld Regional NRM Groups Collective and

Queensland Resources Council. Government representatives from the Department of Agriculture Fisheries and Forestry, the Department of Science, Information Technology, Innovation and the Arts and the Department of Environment and Heritage Protection were also invited.

An overview of the planning issues was presented and feedback and comment was requested from the group. No significant issues were raised in regard to the proposed approach for developing the plans or in relation to water planning issues in the plan area.

## **6 Proposed key directions for the new draft water resource plan and resource operations plan**

Risk assessments completed to assess current and future risks to water users and the environment due to water resource development identified no major issues regarding implementation of the existing water resource plan and it is anticipated that the new water resource plan and resource operations plan will retain most existing provisions. However, new issues including concerns raised by the community will need to be included in the new plans. The key issues identified are:

- incorporation of Basin Plan requirements
- addition of groundwater management under the new plans
- recognition of Aboriginal values and water uses
- revision of environmental management rules for the Cunnamulla Water Supply Scheme (Allan Tannock Weir).

Additionally, there have been minor changes to the way water resource plans and resource operations plans are written in more recent plans and the new plans will need to be updated accordingly. For example, plan outcomes and objectives are now written more clearly and in less generic terms. There is also a stronger focus on reducing regulatory burden by ensuring that provisions are targeted and are not duplicated in other instruments. Any redundant provisions and schedules will be removed.

It is important to note that while this may change the way the plans look, the updates will not substantially change the way water is managed in the plan area. Given the nature of these changes, it is not proposed to seek formal public submissions prior to releasing new draft plans.

### **6.1 Incorporation of Basin Plan requirements**

In chapter 10 of the Basin Plan the requirements for an accredited 'water resource plan' are outlined. These can be included in a state water resource plan instrument or in a separate instrument if appropriate. It is useful to think of an accredited Basin Plan water resource plan as a package that includes a number of documents including a state water resource plan and resource operations plan. The following Basin Plan requirements will be included in the new water resource plan and resource operations plan:

- Management of groundwater (excluding artesian water)see 6.2
- Recognition of Aboriginal values and water uses—see 6.3



## 6.2 Groundwater to be managed under the new draft plans

Currently the water resource plan manages water in a watercourse, lake or spring (surface water) and overland flow, not including artesian or subartesian springs. These waters will continue to be managed under the new draft water resource plan and new draft resource operations plan.

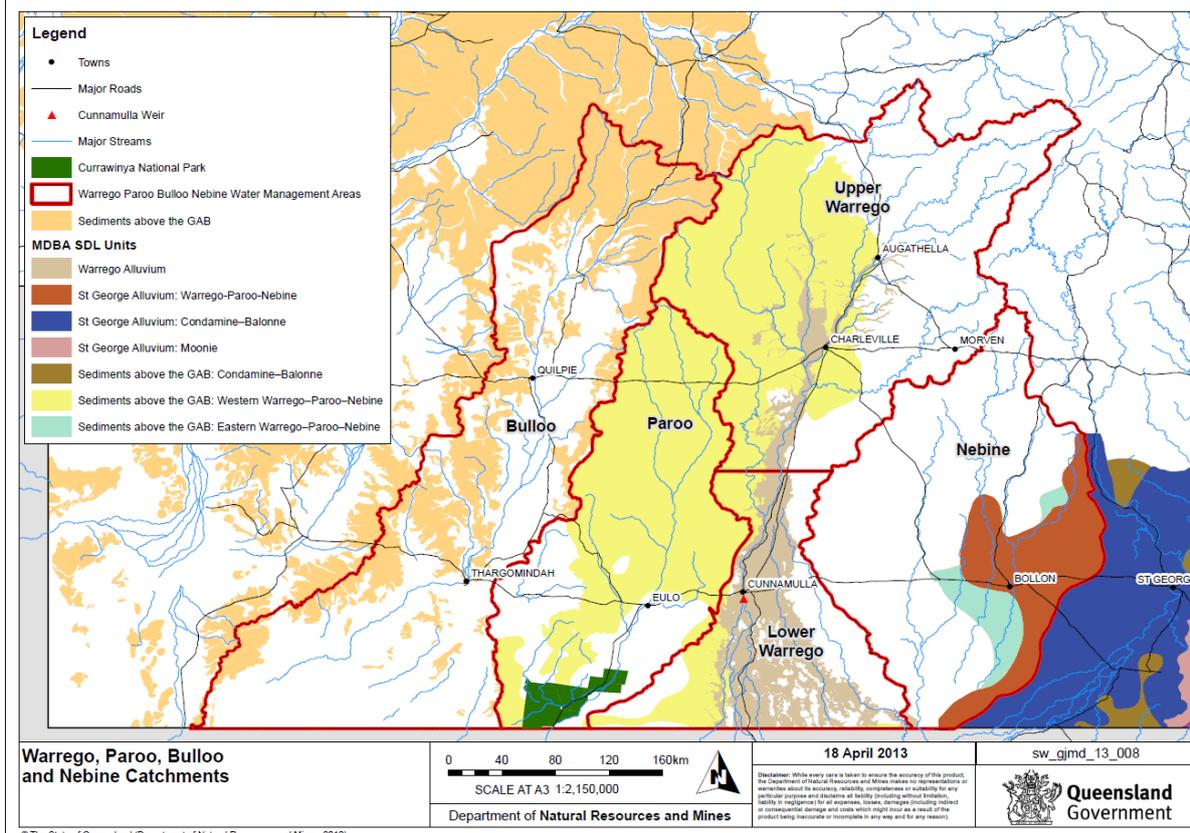
To satisfy additional requirements for managing groundwater under the Basin Plan, it is proposed that the new plan will include the management of groundwater in the following subartesian aquifers—

- Warrego Alluvium
- St George Alluvium
- Sediments above the Great Artesian Basin: Warrego–Paroo–Nebine.

Under the Basin Plan, very large volumes (134 GL in total) could be taken from these aquifers, with current entitlements accounting for approximately 2 GL. The volumes stated in the Basin Plan represent an estimate using best available science but it is likely these shallow alluvial aquifers are only capable of supporting relatively low extraction densities. The aquifers are also characterised by low or variable water quality which has influenced their current low level of development.

Risk assessments found that there is an elevated risk to groundwater in the section of the St George Alluvium (deep) which extends into the Nebine catchment because this system principally underlies the Condamine-Balonne catchment and is fully allocated. No additional water will be allocated from this part of the aquifer and specific water management strategies such as the ability to implement groundwater trading will be incorporated into the new plans to mitigate this risk.

Current groundwater use (including town water supply in towns such as Charleville) tends to be drawn from the Great Artesian Basin and this water is managed under the Water Resource (Great Artesian Basin) plan 2007.



**Figure 2: Groundwater SDL resource units under the Basin Plan to be managed under the new draft water resource plan and resource operations plan.**

### 6.3 Recognition of Aboriginal values and water uses

As a result of an increased understanding of Aboriginal water issues, new water resource plans now consider the provision of water for Aboriginal purposes. Additionally, an accredited water resource plan under the Basin Plan is required to identify objectives and outcomes of Aboriginal people in relation to water resources and to consider opportunities to strengthen the protection of Aboriginal values and uses.

Extensive consultation with Aboriginal groups has occurred as part of the plan review process as well as part of the Basin Plan community consultation process (see 5.3). It is anticipated that surface water from the small strategic reserve currently available for town water supply (100ML in each catchment) will be made available for ‘community use’ including Aboriginal use in the new plans. Additionally, groundwater from unassigned volumes in the Warrego Alluvium, the Sediments above the Great Artesian Basin and the largely undeveloped portion of the St George Alluvium (shallow) may be made available for Aboriginal use.

In addition to water resource plan provisions, it is important to note that recent amendments to the *Water Act 2000* provide for water use by Aboriginal parties for cultural purposes and traditional uses.



## 6.4 Cunnamulla Water Supply Scheme (Allan Tannock Weir)

The environmental management rules that currently apply to the Allan Tannock Weir (operated by SunWater) include the requirement to minimise the occurrence of adverse environmental impacts—such as fish stranding and blue-green algae outbreaks. The environmental risk assessment found that the operation of the weir over the life of the plan has had little impact on downstream ecological health. As a result, Sunwater’s monitoring and reporting obligations are now under review to ensure that they continue to be relevant and necessary.

Pass flow releases from Allan Tannock Weir are for the purpose of supplementing stock and domestic supplies downstream from the weir (although they also have an environmental benefit). Currently, the resource operations plan rules require that water be released downstream within one month of inflows. Stakeholders have requested that this rule be reviewed to ensure that the releases better meet the needs of water users.



## 7 References

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*Warrego, Paroo, Bulloo and Nebine Resource Operations Plan 2006*



## 8 Abbreviations

EFAP Environmental flows assessment program

EFO Environmental flow objective

ML Megalitres (1 000 000 litres)

ROP Resource operations plan

SEAP Stream and Estuary Assessment Program

SRA Sustainable Rivers Audit

WASO Water allocation security objectives

WRP Water resource plan

## Attachment 1—Plan history

Plan / legislation	Date	Details
Water resource plan	2003	The water resource plan was released and applied to water in a watercourse, lake or spring and overland flow water.
Resource operations plan	January 2006	The resource operations plan was released to implement the strategies of the water resource plan
Water resource plan—Minor amendment under the Water Resource (Great Artesian Basin) Plan 2006	March 2006	<p>Upon enactment of the Great Artesian Basin water resource plan changes were made to section 8 'water to which plan applies' was amended to:</p> <p>This plan applies to the following water in the plan area—water in a watercourse or lake, water in springs not connected to artesian water or sub artesian water connected to artesian water and overland flow water, other than water in springs connected to artesian water or sub artesian water connected to artesian water.</p>
Water resource plan—Minor amendment under Water (Commonwealth Powers) Act 2008	November 2008	Amendment to gift 9000 ML of unallocated water to the Commonwealth Environmental Water Holder (CEWH)
Water resource plan—Minor amendment under the Sustainable Planning Regulation 2009	November 2009	Amendment to reflect relationship with <i>Sustainable Planning Act 2009</i> (replaced <i>Integrated Planning Act</i> )
Water resource plan—Minor amendment under <i>Water and Other Legislative Amendment Act 2011</i>	24 November 2011	Continued the effect of moratorium notice (s46(3))
<i>Water Act 2000</i> —Amendment under the <i>Land, Water and Other Legislation Amendment Act 2013</i>	May 2013	Amendment to postpone the expiry date of Queensland Murray–Darling Basin water resource plans until 30 June 2019, and a number of other matters.
Water resource plan—Minor Amendment under the <i>Land, Water and Other Legislation Amendment Act 2013</i>	May 2013 (not updated as of July 23 2013)	Amendment to reflect renumbering of the relevant section of the <i>Water Act 2000</i> (Qld).



## Attachment 2—Assessment of plan outcomes

Water resource plan outcomes	Water resource plan strategy	Resource operations plan rules	Monitoring	Assessment of outcome
<p><b>General outcomes of the Water Resource (Warrego, Paroo, Bulloo and Nebine) Plan 2003 (Section 9)</b></p>				
<p>Water is to be allocated and managed in a way that seeks to achieve a balance in the following outcomes—</p>				
<p>9(a)—to make water available to sustain current levels of, and to support future growth in, economic activity in the plan area while recognising the social and cultural values of communities in the basin;</p>	<p>Section 19 states that decisions must be consistent with environmental flow objectives and water allocation security objectives.</p> <p>Section 18 states that no decision can be made that increases the average volume of water available to be taken in the plan area.</p> <p>Section 41 states that in dealing with unallocated water, the chief executive must consider current and emerging requirements for water.</p>	<p>Water allocation change rules (e.g. trading and seasonal assignment)</p> <p>Water sharing rules (e.g. announced allocations)</p> <p>Dealing with water authorisations</p> <p>Granting and converting authorisations</p> <p>Dealing with unallocated water</p>	<p>Departmental water and socioeconomic data</p>	<p>Water availability continues to exceed usage</p> <p>The water resource plan provided a reserve of unallocated water to support growth in tourism and urban centres without compromising the security or reliability of other water users (DNRM (a) 2013)</p> <p>A low risk of insufficient water for water users was found for surface water across the plan area (DNRM (b) 2013)</p>
<p>9(b)—to provide increased security in water entitlements for water users, including protecting the probability of being able to obtain water under a water allocation;</p>	<p>Section 19 states that decisions must be consistent with water allocation security objectives.</p>	<p>Water sharing rules</p> <p>Infrastructure operating rules (including critical water supply strategy)</p> <p>Metering</p> <p>Dealing with authorisations</p>	<p>Departmental water data</p>	<p>The water resource plan has improved the security, certainty, transparency and understanding of the terms of access for consumptive and non-consumptive water users (DNRM (a) 2013)</p>



Water resource plan outcomes	Water resource plan strategy	Resource operations plan rules	Monitoring	Assessment of outcome
		ROL holder monitoring and reporting  Chief executive's data collection and assessment		The current water resource plan is a no growth plan that regulates both overland flow and entitlements to take from a watercourse and limits use to existing entitlements and small reserves of unallocated water.  Population growth was stable over the life of the plan and is expected to remain unchanged to 2030, suggesting that future water availability should not change significantly (DNRM (a) 2013).
9(c)—to support tourism in the plan area, including by maintaining rivers and their surroundings of high tourism value;	Schedule 4 of the water resource plan states that unallocated reserves for all catchments are available for town water, ecotourism or similar.	Granting and converting authorisations  Purpose of a water allocation ('any')  Water allocation change rules (trading and seasonal water assignment)  Operating rules (e.g. waterhole management)  Dealing with unallocated water  Chief executive's data collection and assessment	Socioeconomic assessment	Unallocated water reserves were set aside for ecotourism or similar.  Tourism is a small sector that has experienced some growth over the life of the plan (DNRM (a) 2013).



Water resource plan outcomes	Water resource plan strategy	Resource operations plan rules	Monitoring	Assessment of outcome
9(d)—to support an effective and efficient market in water allocations;	Part 5, Division 3 states rules that apply to the conversion of authorisations to water allocations	ROL holder monitoring of water use Metering Water sharing rules Water allocation change rules (e.g. trading and seasonal assignment) Operating rules Granting and converting authorisations	Departmental and ROL holder data	The provision for conversion of water licences to tradable water allocations has provided water users with additional flexibility to manage their water portfolio. This is evidenced by increased activity in the permanent water allocation market in the water resource plan area since 2009 (DNRM (a) 2013).
9(e)—to make water from the basin available to be stored and used while retaining water for the riverine and associated environment;	Section 30 states that when deciding operating arrangements, supply requirements and environmental management rules, the chief executive must consider the impact on a number of features of the riverine environment including water quality, beds and banks of watercourses, fish movement and riparian vegetation.	Water allocation change rules (e.g. trading and seasonal assignment) Granting and converting authorisations Water sharing rules Operating rules	Surface Water Monitoring Network DNRM have contributed to monitoring and data collection for the Sustainable Rivers Audit (SRA)—Commonwealth program under the Murray Darling Basin Authority (MDBA) (2006-2013). ROL holder monitoring (SunWater at Allan Tannock Weir)	Environmental risk assessments found that no ecological assets were at high risk as a result of water resource planning over the life of the plan, suggesting that sufficient flows were available for the environment. A low risk of insufficient water for water users was found for surface water across the plan area (DNRM (b) 2013)
9(f)—to achieve ecological outcomes consistent with maintaining a healthy riverine environment, floodplains and wetlands, including for example, maintaining—	Section 19 states that decisions must be consistent with environmental flow objectives. Section 30 states that when deciding operating arrangements, supply requirements and	Chief executive’s data collection and assessment Operating rules (e.g. diversion limit, change in rates of release, maintenance of low flow outcomes)	ROL holder monitoring (SunWater at Allan Tannock Weir) includes water quality, fish stranding and algal bloom monitoring. DNRM have contributed to	No ecological assets were at high risk as a result of water resource planning over the life of the plan (DSITIA (a) 2013). (Ecological assets are selected to be indicators



Water resource plan outcomes	Water resource plan strategy	Resource operations plan rules	Monitoring	Assessment of outcome
<p>(i) pool habitats, and native plants and animals associated with the habitats, in watercourses; and</p> <p>(ii) natural riverine habitats that sustain native plants and animals; and</p> <p>(iii) the natural abundance and species richness of native plants and animals associated with habitats within watercourses, riparian zones, floodplains and wetlands; and</p> <p>(iv) active river-forming processes, including sediment transport; and</p> <p>(v) the success of bird-breeding in the Currawinya Lakes system, the Paroo Overflow Lakes, the Bulloo Lakes and other significant wetland systems in the Paroo and Bulloo basins; and</p> <p>(vi) the unique genetic diversity of aquatic plants and animals within the Bulloo basin; and</p> <p>(vii) the near pristine condition of riverine habitats and associated native plants and animals within the Paroo and Bulloo basins;</p>	<p>environmental management rules, the chief executive must consider the impact on a number of features of the riverine environment including water quality, beds and banks of watercourses, fish movement and riparian vegetation.</p> <p>Section 45 states the requirement for natural ecosystem monitoring to be carried out by water infrastructure operators and state agencies.</p>	<p>and waterhole management)</p> <p>Use of performance indicators for monitoring by the chief executive</p> <p>ROL holder monitoring and reporting</p> <p>Metering links to monitoring programs undertaken by other stakeholders and agencies</p> <p>Conditions for taking overland flow</p>	<p>monitoring and data collection for the SRA—Commonwealth program under the MDBA (2006-2013).</p> <p>Stream and Estuary Assessment Program (SEAP) undertook a field based assessment of all rivers in the plan area in 2012. This included waterhole bathymetry, fish and macro-invertebrate surveys, water quality and riparian vegetation.</p> <p>Aerial surveys of waterbirds in Eastern Australia (ongoing since 1983—UNSW)</p>	<p>of different aspects of the flow regime).</p> <p>ROL holder monitoring data collected at Allan Tannock Weir suggests that the weir is not impacting on water quality, habitat quality or aquatic biota and is not significantly affecting river forming processes such as erosion (DSITIA (a) 2013).</p> <p>SRA data concludes that assets are generally being maintained in the Paroo and Warrego catchments. Fish communities in the Warrego were identified to be in poor condition although the cause of this was not stated. (Pest fish such as carp are thought to be a major factor in the condition of native fish communities) (DSITIA (a) 2013).</p> <p>Eastern Australian Waterbird survey results suggest that wetland breeding opportunities are being maintained (DSITIA (a) 2013)</p>
<p>9(g)—to maintain water quality at levels acceptable for water use and to support natural ecological</p>	<p>Section 30 states that when deciding operating arrangements, supply requirements and</p>	<p>Operating rules (e.g. waterhole management)</p>	<p>Surface Water Ambient Network (SWAN)</p>	<p>SunWater data indicates that water quality downstream of the Allan</p>



Water resource plan outcomes	Water resource plan strategy	Resource operations plan rules	Monitoring	Assessment of outcome
processes;	environmental management rules, the chief executive must consider the impact on a number of features of the riverine environment including water quality.	Chief executive's data collection and assessment ROL holder monitoring and reporting	Water quality data collected by SunWater at the Allan Tannock Weir quarterly from March 2004 to June 2008	Tannock Weir is not affected by the operation of the weir. DNRM SWAN monitoring results found that surface water quality generally met Queensland Water Quality Guideline values (DSITIA (a) 2013).
9(h)—to promote a continual improvement in water use efficiency, both in the plan area generally and on individual properties;	Section 41 states that in dealing with unallocated water the chief executive must consider water efficiency measures.	Metering Unallocated water (making reserves available for town supply) Chief executive's monitoring, assessment and reporting	Departmental water metering records	Healthy Headwaters Water Use Efficiency Project (Commonwealth funded) is providing funding to increase on-farm water efficiencies (primarily in irrigation infrastructure) in the Queensland Murray–Darling Basin. Rural water use efficiency program (RWUE) provides irrigation information (farm dams, irrigation infrastructure etc.) to agriculture.



Water resource plan outcomes	Water resource plan strategy	Resource operations plan rules	Monitoring	Assessment of outcome
9(i)—to promote improved understanding of the matters affecting the health of riverine and associated systems in the basin;	<p>Section 30 states that when deciding operating arrangements, supply requirements and environmental management rules, the chief executive must consider the impact on a number of features of the riverine environment including water quality, beds and banks of watercourses, fish movement and riparian vegetation.</p> <p>Section 45 states the requirement for natural ecosystem monitoring to be carried out by water infrastructure operators and state agencies.</p>	<p>ROL holder monitoring and reporting</p> <p>Chief executive's monitoring, assessment and reporting</p> <p>Links to monitoring and assessment programs undertaken by other stakeholders and agencies</p>	<p>SEAP (DSITIA) undertook a field based assessment of all rivers in the plan area in 2012. This included waterhole bathymetry, fish and macro-invertebrate surveys, water quality and riparian vegetation.</p> <p>DNRM have contributed to monitoring and data collection for the SRA—Commonwealth program under the MDBA (2006-2013).</p> <p>ROL holder monitoring (SunWater at Allan Tannock Weir) includes water quality, fish stranding and algal bloom monitoring.</p>	<p>DNRM provides support to South West NRM to carry out activities that include education and awareness programs.</p> <p>Stakeholder feedback indicates an increase in awareness and understanding regarding water planning and riverine health over the life of the water resource plan.</p>
9(j)—to maintain beneficial flooding in the plan area;	Section 19 states that decisions must be consistent with environmental flow objectives (Section 10 states that flooding flow is a performance indicator for environmental flow objectives).	<p>Water sharing rules</p> <p>Dealing with water licences (including conditions for taking overland flow)</p>	Eastern Australian Waterbird survey	<p>End of system flows into wetland of importance have generally been maintained (DSITIA (a) 2013).</p> <p>A number of ecological assets related to floodplain inundation were assessed in the environmental risk assessment and none were found to be at high risk (DSITIA (a) 2013).</p>
9(k)—consistency with Murray- Darling Basin agreements and commitments, including the Murray Darling	Section 18 states that no decision can be made that increases the average volume of water available to be taken in the plan area.	<p>Water sharing rules</p> <p>Dealing with water licences</p> <p>Interstate agreements</p>	Murray–Darling Basin Cap Audit Departmental data	The granting of environmental water allocations to the CEWH occurred in 2008.



Water resource plan outcomes	Water resource plan strategy	Resource operations plan rules	Monitoring	Assessment of outcome
<p>Basin Salinity Management Strategy and implementing a cap on the taking of water;</p>	<p>Section 16 states that strategies must complement the National Action Plan for Salinity</p> <p>Section 41 states a number of matters the chief executive must consider when dealing with unallocated water</p> <p>Section 41A states that the chief executive must grant environmental water allocations to the Commonwealth Environmental Water Holder (CEWH)</p>	<p>Chief Executive's Monitoring Assessment and Reporting (Murray–Darling Basin Cap audit)</p>		<p>The current water resource plan is recognised as a transitional water resource plan under the Commonwealth Water Act 2007.</p>
<p>9(l)—consistency with water sharing arrangements and commitments between the State and New South Wales.</p>	<p>Section 19 states that decisions must be consistent with environmental flow objectives (section 11).</p> <p>Section 11 (Environmental flow objectives) state the required end of system flows that cross the border from the state into NSW.</p> <p>Section 31 states that the resource operations plan must meet interstate obligations</p>	<p>Chief Executive's Monitoring Assessment and Reporting (Murray–Darling Basin Cap audit)</p> <p>Interstate agreements</p> <p>Paroo River Agreement</p> <p>Murray–Darling Basin Agreement</p>	<p>Murray–Darling Basin Cap Audit</p> <p>Departmental data</p>	<p>The water resource plan is managing water consistent with the</p> <p>Paroo River Agreement and the Murray–Darling Basin Agreement</p>



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