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1. INTRODUCTION

1.1. Project proponent

SunWater Ltd is the Proponent for the Nathan Dam and Pipelines Project. For over 80 years, SunWater has specialised in the investigation, design, construction, maintenance and operation of water infrastructure. SunWater also manages bulk water supply to rural, urban and industrial customers.

SunWater owns and operates bulk water supply and distribution infrastructure located throughout regional Queensland with an estimated replacement value of $6.9 Billion and supplying about 40% of the water used commercially in Queensland via 23 water supply schemes and three subsidiary companies. SunWater services approximately 6,000 water supply customers including mining, industrial and manufacturing companies, local governments, power stations, irrigators and statutory water boards. SunWater has extensive experience in water supply development, and has the support systems in place to enable it to effectively implement the Project and ensure compliance with relevant legislation, including certified quality, environmental and workplace health and safety management systems.

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SunWater has an excellent environmental record, and aims to achieve a high standard of care for the natural environment in all of its activities. Its certified Environmental Management System incorporates a system of monitoring to capture adverse trends so that action can be taken before an environmental incident that breaches the law can occur. Furthermore an internal auditing process is in place to facilitate continual improvement in environmental performance.

1.2. Project description

The Project is the construction and operation of Nathan Dam and associated water distribution infrastructure in Central Queensland. A detailed description of the Project is provided in Section 2.

Rapid recent and planned growth in the coal mining and coal seam gas industry has created increased demand for water in the Dawson sub-region. Over recent years, the Queensland Government has developed a range of strategic planning and policy initiatives to support this development. The Nathan Dam and Pipelines Project is recognised in all the relevant documents as the preferred water supply alternative in the region (Section 1.3). Urban demand is a small component of overall demand, and is strongly related to mining development. Agricultural demand exists but is relatively minor and likely to be price constrained.

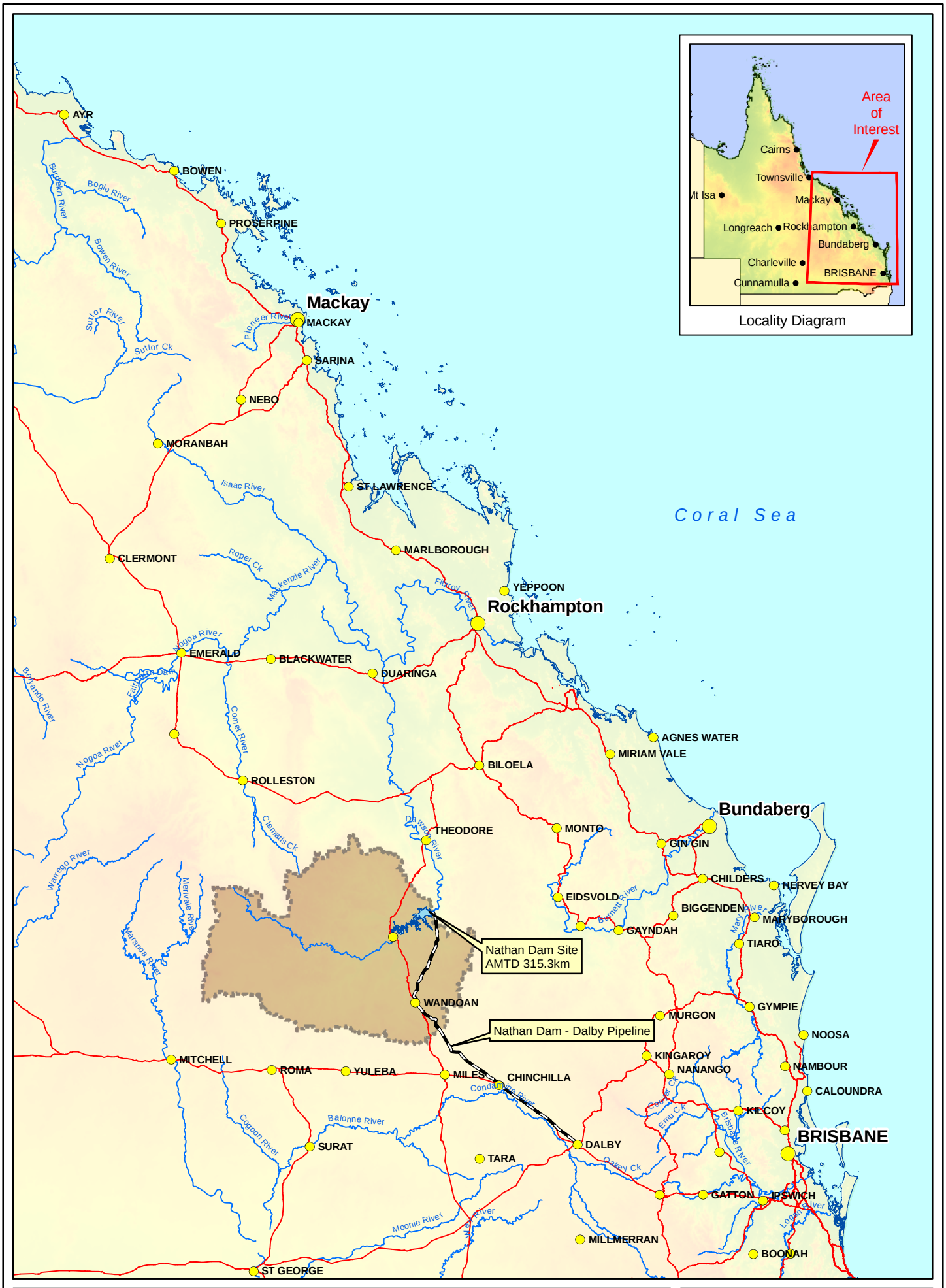
Water from the dam (approximately 66,011 ML/a high priority equivalent) will be transported via a trunk pipeline to primarily service coal mines and power stations (and associated urban communities) in the Surat Basin, extending to Dalby (260 km) (Figure 1-1). Water will also be released downstream to towns along the Dawson River, to new mining customers in the Southern Bowen Basin, and to existing and potentially new irrigation customers in the Dawson Valley Water Supply Scheme (DVWSS). Water may also be reserved within the storage as required to meet critical urban supply needs in the lower Fitzroy and other parts of Queensland in line with the government's objective to establish a state water grid.

The Project is located in Central Queensland on the Dawson River at Adopted Middle Thread Distance (AMTD) 315.3 km which is approximately 75 km downstream of Taroom along the river, some 11 km downstream of Glebe Weir and 8 km upstream of Nathan Gorge (Figure 1-1). Gyranda Weir is below Nathan Gorge and some 30.8 km downstream from the dam site. The total river distance from the dam site to the Fitzroy River mouth is approximately 620 km (Figure 1-1). The capacity of the dam will be 888,312ML at Full Supply Level (FSL) 183.5 m Australian Height Datum (AHD) and it will inundate an area of approximately 13,508 ha (with an additional 316 ha of islands created) from a catchment of 23,185 km^2 (Figure 1-1).

The Project also includes the following components:

- establishing resource extraction areas;
- constructing a dam site access road;
- relocating, raising or otherwise upgrading sections of local government roads and state controlled roads;
- providing new property access where required;
- relocating local power and telecommunications infrastructure and providing new infrastructure;
- removing or treating redundant infrastructure (such as Glebe Weir);
- relocating private infrastructure required to support continued use of land not affected by the Project;
- constructing various related facilities such as offtake and outlet works, fish and aquatic fauna transfer device, protective works and recreational facilities;
- establishment of temporary material lay-down areas;
- installing new gauging stations at the headwater and tailwater of the dam and at major tributaries upstream of the dam (including rainfall gauges strategically located throughout the catchment area); and
- providing access tracks to the pipeline easement.

Operation of the water distribution infrastructure involves maintenance of the pipes, valves, surge tanks, standpipes, scours, access tracks and other structural components primarily with a permanent easement of 15 m width. An easement of 30 m wide will be required for construction. It also includes balance tanks and pump stations for which land will be acquired. In some cases land may also be acquired for surge tanks.



LEGEND

- Towns
- Major Roads
- Major Rivers
- Nathan Dam Catchment

Projection: GDA94 Zone 56

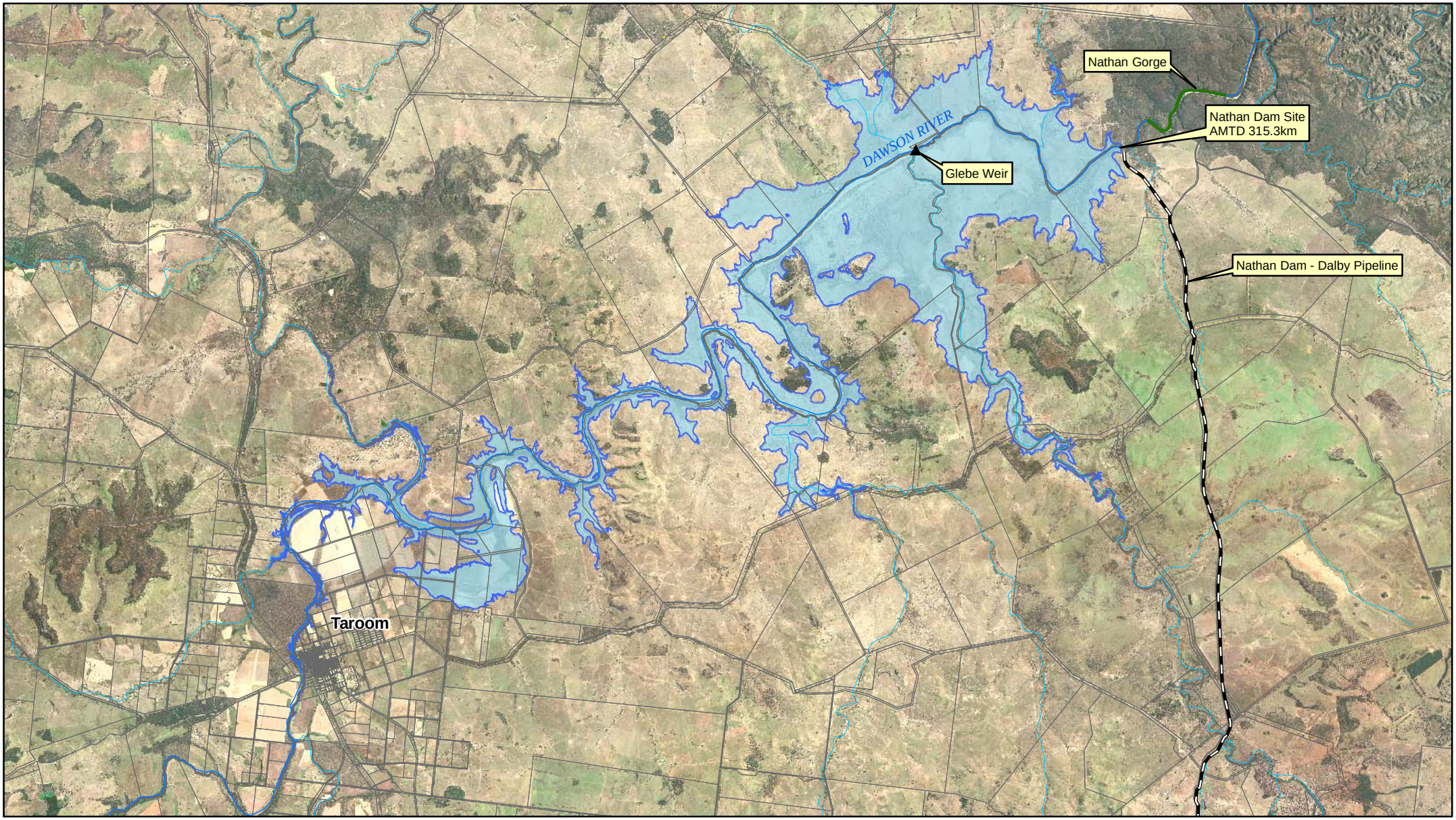
Figure 1-1

0 15 30 60 90
Kilometres
Scale 1:4,000,000 (at A4)
SW 233053B

SKM SunWater Making Water Work

NATHAN DAM AND PIPELINES EIS

Locality plan



LEGEND

Full Supply Level 183.5 AHD

Projection: GDA94 Zone 56

Figure 1-2

0 1.5 3 6

Kilometres

Scale 1:200,000 (at A4)

N

SW 233205B

SKM SunWater Making Water Work

NATHAN DAM AND PIPELINES EIS

Water storage area

The capital cost of the Project is $1400 million (at preliminary design accuracy). The aim is to commission the Project in June 2016. Pending approvals, the construction period is programmed for between July 2013 and June 2016. This will include a six month early works program in the latter half of 2013 where the required road upgrades are performed and site facilities are established prior to the commencement of dam and pipeline construction activities in January 2014.

1.3. Need for the Project

This section describes the need for the Project in relation to both strategic planning processes relevant to the supply security and distribution of water, and the specific short- and long-term demands identified.

1.3.1. Strategic planning for water supply needs

1.3.1.1. Statewide Water Policy (SWP)

The SWP (Department of Infrastructure and Planning, 2006) established a plan to balance water supply with increasing demand from urban communities, industry and rural users, to improve water security, and support ongoing economic growth. The SWP was, with respect to the Fitzroy Basin, based on the Central Queensland Regional Water Supply Strategy (CQRWSS), (NRW 2006a) as it stood at the time. The SWP was developed to improve water security and supply through the provision of new infrastructure, investigate new sources of supply and enhance demand management through encouraging greater conservation and education across business, industry and the community. The SWP also recognised the impacts of climate variability and climate change and included commitments aimed at:

- managing demand, improving water use efficiency and improving the match between types of water (such as recycled water, raw water, and treated water) and water use;
- developing alternative water supply sources such as groundwater, stormwater, recycled water, and water produced from coal seam gas (CSG) extraction;
- improving planning and approvals processes to better manage growth, develop regional water supply strategies and streamline the number of planning instruments and approvals that water asset owners and water service providers must obtain to operate their businesses;
- developing innovations in water management that address issues such as evaporation reduction, greywater and wastewater treatment and use, stormwater harvesting, aquifer storage and recovery, reduction of losses from cooling towers, cloud seeding, and the impact of climate variability and change on water; and
- developing water infrastructure including raising existing storages, weirs and dams, and regional pipeline grids that may, in the future, form part of a statewide water grid.

Under the SWP, up to $222 million was committed by the State government to develop regional water storage infrastructure and a further $198 million was committed to developing regional pipeline grids as a first step towards a statewide grid. Commitments toward projects that are directly relevant to Central Queensland include:

- $14 million toward raising Eden Bann Weir;
- $22 million toward constructing Rookwood Weir;
- $56.5 million for the development of Connors River Dam;

- $60 million for pipelines to distribute water from Connors River Dam;
- $120 million toward design and construction of Nathan Dam (subject to obtaining Commonwealth approval under the EPBC Act);
- $48 million for a pipeline from Rockhampton to Gladstone; and
- $20 million for a pipeline connecting Rockhampton to Yeppoon.

Subsequent to development of the SWP, the Nathan Dam and Pipelines Project was included in the *Program of Works, Statewide Water Grid Regional Water Infrastructure Projects* approved by the Governor in Council under Part 3 of the SDPWO Act on 18 April 2008. This program directs the designated proponents of the projects to undertake all necessary investigations in order to obtain environmental approvals and prepare a business case for their respective designated regional water projects. SunWater was the designated proponent for the Nathan Dam and Pipelines Project.

1.3.1.2. Coal Infrastructure Program of Action

In 2005, the government released the Coal Infrastructure Program of Actions (CIPA) detailing approximately $4.2 billion worth of coal-related infrastructure (DIP 2005, updated in 2008) to meet the growing needs of the coal industry. The CIPA notes infrastructure costs of:

- ports — $7.2 billion
- rail and rolling stock — $6.7 billion
- energy — $1.3 billion
- water — $445 million
- skills, housing and planning — $56 million.

The major port expenditure relates to the expansion of the Port of Abbot Point near Bowen and the new Wiggins Island Coal Terminal at Gladstone. Each terminal has associated significant expenditure related to the rail infrastructure that transports product from the mines to the port. The Goonyella Coal Supply System is the rail system which links the mines to the Dalrymple Bay and Hay Point Coal terminals (ports) near Mackay. Some $3 billion was committed and planned to be spent on this infrastructure by either private industry or Government under the program. These developments, which target a solution to the bottleneck at Queensland's export ports, drive the other infrastructure as noted above, including water resource development.

With respect to water, the proposed developments covered by the Program of Action either relate to mining areas or to ports and industrial areas. The relationships are as follows:

- Gladstone — Fitzroy to Gladstone Water Pipeline
- Surat Basin and southern Bowen Basin — Nathan Dam and Pipelines Project
- Bowen Basin — Connors River Dam and Pipelines Project (proposed) and Burdekin-Moranbah Pipeline (completed)
- Port of Abbot Point and Abbot Point SDA — Water for Bowen Project.

1.3.1.3. Central Queensland Regional Water Supply Strategy (2006)

Background

The CQRWSS (NRW, 2006a) indicated the preferred options for water supply for the region which were derived through the Central Queensland Regional Water Supply Study. The study involved a partnership process including State government agencies, local government, industry, and community organisations and included the following issues:

- continuing urban growth and industrial development particularly in the Lower Fitzroy and Gladstone areas;
- continuing mining development in the Bowen and Surat basins;
- approaching full utilisation of entitlements in some existing water supply schemes;
- failure of some existing water supply schemes to meet users requirements; and
- predicted water supply shortfalls throughout much of the region from 2005 to 2020 based on projected water demands for urban, industrial, coal mining and agricultural uses.

The CQRWSS covered an area of about 153,000 km^2 including the Fitzroy Basin and the coastal streams of the Capricorn Coast and the Gladstone area. It did not however include areas to the south of Nathan Dam in the Surat Basin. The CQRWSS was developed having regard to long-term integrated regional growth management frameworks to ensure optimisation of economic, social and environmental outcomes as required under the National Water Initiative (NWI). The CQRWSS identified a mix of options for meeting future water demands and was based on a hierarchy of three key principles:

1) facilitating the highest value and best use of water through trading of existing secure and well specified water entitlements;
2) promoting efficient use of water – for example, by improving demand management and by recycling water; and
3) developing additional water supply sources only where demands cannot be met through the above measures and where unallocated water is available.

The steps involved in developing the CQRWSS were:

1) identifying existing water use;
2) estimating future short, medium and long-term water supply requirements;
3) identifying shortfalls in existing supply systems to meet existing and future water requirements;
4) identifying potential for making better use of existing supplies, for example, water trading, improved demand management and enhanced water reuse;
5) identifying potential options for new water supply sources to meet shortfalls;
6) preliminary evaluation of potential infrastructure options on the basis of economic, social and environmental criteria;
7) combining measures identified in steps 4 and 6 to provide a supply strategy for the region;
8) assessing risks associated with the supply strategy; and
9) identifying and prioritizing actions required to implement the strategy.

Current situation

There are currently seven major water supply schemes supplying approximately 511,460 ML/yr of supplemented water supplies (drawn from a dam or weir) within the CQRWSS region (NRW, 2006a):

- Bowen Broken Water Supply Scheme;
- Lower Fitzroy Water Supply Scheme;
- Fitzroy Barrage Water Supply Scheme;
- Dawson Valley Water Supply Scheme;
- Callide Valley Water Supply Scheme;
- Awoonga Dam Water Supply Scheme; and
- Nogoa Mackenzie Water Supply Scheme.

SunWater operates the infrastructure associated with all of the schemes above, except for the Fitzroy Barrage which is operated by Fitzroy River Water and Awoonga Dam which is operated by Gladstone Area Water Board (which services Gladstone). The CQRWSS notes that there is full utilisation of available supplemented water supplies in some of the schemes, particularly the Nogoa Mackenzie Water Supply Scheme, the Dawson Valley Water Supply Scheme and the Lower Fitzroy Water Supply Scheme. The performance of some of the major water supply schemes does not meet user requirements in terms of the volumetric allocation or the reliability of supply, or in some cases both.

Nathan Dam would be located within the Dawson Valley Water Supply Scheme (DVWSS), and would inundate the uppermost weir in the existing scheme, Glebe Weir.

The DVWSS extends along the Dawson River from upstream of Theodore to downstream of Boolburra, north of the Capricorn Highway. It contains two channel systems – Theodore and Gibber Gunyah. The DVWSS was Queensland's first major irrigation undertaking and was established by resolution of State Parliament in 1923. Construction of works within the scheme commenced in 1924. The first farms in the Theodore Section on the right bank of the Dawson River were opened in 1926 and landholders occupied their selections early in 1927. The first farms in the Gibber Gunyah Section on the left bank of the Dawson River were opened and occupied in 1957.

Whilst irrigation customers are the predominant users of water in the scheme, water is also supplied to urban and mining customer. The scheme provides water for the towns of Theodore, Moura, Baralaba and Duaringa. Coal mines and an ammonium nitrate plant in the Moura-Kianga area, and a gold mining venture at Cracow are also supplied from the DVWSS.

The approximate distribution of supplemented water use across the CQRWSS region is shown in Figure 1-3. Agriculture is the largest user of supplemented supplies and this is mostly provided as medium priority water. Medium priority water is less secure than high priority water which is allocated to urban and industrial uses.

Groundwater use in the region is generally limited to supplying a number of smaller towns and providing stock and domestic supplies. Within the Dawson-Callide sub-region the Callide Valley Groundwater Area provides water for irrigation, urban and industrial purposes. (NRW, 2006a).

Water is released from Callide (136,700 ML/a) and Kroombit dams (14,600 ML/a) to downstream controlling structures, from which water percolates into the underlying aquifers. Water is supplied to the majority of customers in the valley from these aquifers.

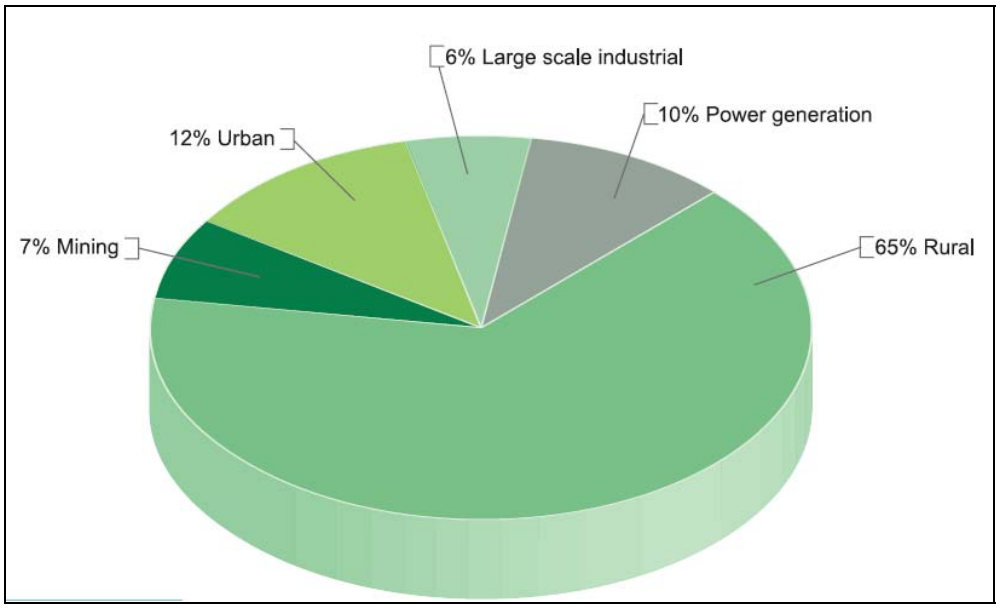


Figure 1-3 Approximate break-up of water use by sector (NRW, 2006a)

As at 2006 (NRW, 2006a), tradable water allocations had been established along most of the Nogoa, Mackenzie and Fitzroy rivers from Fairbairn Dam to the Fitzroy Barrage and the Dawson River downstream of Glebe Weir.

The Water Resource (Fitzroy Basin) Plan 1999 (the WRP) annual report (2008) identified 29 permanent supplemented water allocation transfers (separate from land), 45 permanent water allocation transfers (with land) and 3 permanent unsupplemented water allocations (separate from land) over the 2007-08 water year (DNRW, 2008).

Drought has provided an impetus for water service providers to implement strategies that promote reduced consumption by water users (NRW, 2006a). Demand management employing strategies such as pricing, education, rostering, recycling, and water use efficiency supported by research and development have been used to reduce consumption.

The Rural Water Use Efficiency Initiative (RWUE) commenced by the Department of Natural Resources and Water (now DERM) is an example of demand management. RWUE is a partnership between government and industry, where government supports industry to provide services to growers to improve water management practices and achieve more efficient use of water. The aim of RWUE is to continue to help irrigators in each industry improve their on-farm management of natural resources and reduce their off-farm impacts, particularly through efficient irrigation and management of nutrients.

Demand reduction initiatives across the main demand sectors have included:

- reducing supply network losses and improving tariff structures to decrease water demand in urban areas;
- improving irrigation efficiency to increase production, maintain production in drier years or facilitate some water trading; and

- investing in measures to improve water management and better manage risks associated with water scarcity in industry, mining and power generation.

The Fitzroy Basin water supply and distribution system is described further in Section 14.

Future water demand and adequacy of supplies

The CQRWSS anticipates that water demand in the region (not including the Surat Basin south of Nathan Dam) will continue to increase, principally driven by growth in the industrial and mining sectors and associated urban development, with some growth in irrigated agriculture (NRW, 2006a). The strategy considered future water demands in 2010, 2015 and 2020 and the adequacy of existing supplies to identify likely shortfalls (NRW, 2006a). The estimated future water requirements for the various sectors were based on the following (NRW, 2006c):

- urban – current water use, factored by population projections considering factors such as likely coal mine expansions or new developments;
- industrial – nominated by a number of agencies, including local governments, the Gladstone Area Water Board and the Department of State Development and Innovation (now DEEDI);
- coal mining – saleable coal production projections provided by the Bureau of Mines and Petroleum for existing and potential new mines out to 2015, with this requirement for water held through to 2020 (because of the changing nature of the coal market) assuming:
  - 300 L of external clean water per tonne of washed coal,
  - 100 L per tonne for unwashed coal, and
  - allowances for mines requiring no external water; and
- agriculture – State and national production trends, constraints to potential development in Central Queensland, and potential for irrigated field crops in parts of the region where unallocated water might be available.

Potential shortfalls between currently available supplies and future demands were identified in all sub-regions. The Project would address the shortfalls identified in the Dawson-Callide and Upper Dawson sub-regions. The CQRWSS estimated shortfalls in water supplies for the urban, industry, mining and agricultural sectors for the Dawson-Callide and Upper Dawson sub-regions are provided in Table 1-1. (More recent estimates of future water demand are discussed in Section 1.3.2.)

Table 1-1 Estimated water supply shortfalls by sector (Dawson-Callide and Upper Dawson sub-regions)

Sector	2010	2015	2020
Urban, Industry and Mining	6,000 ML/yr	15,000 ML/yr	17,000 ML/yr
Agriculture	-	12,000 ML/yr	12,000 ML/yr

(Source: CQRWS, Figure 6b)

Strategic responses

The CQRWSS identified a number of measures that will contribute to addressing the predicted water supply shortfalls. These measures are summarised as follows:

- developing more effective water entitlement trading opportunities including providing for conversion of medium priority water allocations to high priority water allocations in the Nogoa Mackenzie Water Supply Scheme – the Resource Operations Plan (ROP) already provides for such conversions in the Lower Fitzroy and Fitzroy Barrage Water Supply Schemes;
- maximising the effectiveness of supplies through demand management and more efficient use of water including:
  - improving system management,
  - using legislative provisions for restricting water supply, managing systems leakage and implementing drought management plans,
  - encouraging industry to improve water use efficiency,
  - sharing information and encouraging the mining sector to adopt best practice water use systems in all phases,
  - reducing rural water distribution losses and improving irrigation techniques,
  - implementing internal water use efficiency measures in new urban developments and recycling water from urban sources, of production;
- releasing unallocated water including that reserved for specific infrastructure projects on implementation of these projects, after rigorous evaluation; and
- increasing water supply sources through assessing and, if feasible, proceeding with the Connors River Dam, Fitzroy Weirs and Nathan Dam proposals.

Since development of the initial WRP, it has been recognised that extensive overland flow capture in some catchments (for example, the Comet River) already utilises a significant proportion of the available 'unallocated' water. A moratorium has been placed on further overland flow development and assessments of existing development are under way to redefine the amount of the consumptive use resource remaining for potential release to other users.

The CQRWSS identified future water needs for the sub-regions and the preferred water supply option for meeting these needs. Within the Dawson-Callide and Upper Dawson sub-regions the Nathan Dam was identified as the best option for meeting the short to medium-term water needs. The strategy also introduced the possibility of Nathan Dam providing supplies to the Lower Fitzroy, particularly in critical water supply periods. The CQRWSS placed a high priority on the initiative though how it would be put into practice has not been investigated. It is possible that it may form part of a Drought Response Strategy hence would rarely be enacted.

Alternatives to Nathan Dam as the means of satisfying this demand are addressed in Section 1.7.

1.3.2. Recent water demand studies

1.3.2.1. Mining demand

In late 2007, SunWater opened discussions with existing and potential coal miners in the Surat Basin with a view to assessing future demand for water from Nathan Dam. This study considered the next 5 to 10 years and identified 19 coal mine and power generation projects and five local authorities where there is an appreciable probability that water could be supplied from Nathan Dam. Detailed results of this demand assessment are not publicly available as it contains information provided by individual mining companies on a confidential basis. SunWater's assessment confirmed that adequate water supply is one of the critical supporting factors for the development of the thermal coal industry in the region. Most coal mine developments in the Surat Basin are also dependant on access to port and rail infrastructure. The development of the necessary port and rail infrastructure is in turn dependant on development of a keystone project such as Xstrata's Wandoan Coal project.

The medium to long term expansion of the thermal coal sector remains relatively unaffected by recent economic events with growth being driven by a long-term commodities demand 'super-cycle' due largely to the urbanisation of developing countries.

Since the initial demand assessments in late 2007, SunWater has been in regular contact with potential customers to continually update demands and development timeframes. Assuming that the Surat Basin Rail project and the Wiggins Island Port development proceeds, current estimates of demand in the Surat Basin range from 52,000 ML/a to 68,000ML/a. About half of this demand is associated with Xstrata's projects alone. The Wandoan Coal Project, which is the first of Xstrata's planned developments in the region, has now been approved.

In more recent times, considerable demand has been developing in the Southern Bowen Basin around Blackwater and the Nogoa-Mackenzie River system. As Fairbairn Dam is fully allocated, it has been suggested that growing demand in the area could be supplied by releases from Nathan Dam to the end of the regulated section of the Dawson River, near Duaringa. Water from Nathan Dam could then be delivered to Blackwater via a pump station and about 80 km of pipeline. SunWater currently supplies about 35,000 ML/a of industrial demand to coal miners in the Blackwater area. If this demand could be supplied from Nathan Dam, up to 35,000 ML/a of new demands could then be supplied from Fairbairn Dam. Recent assessments of potential demands in the Nogoa Mackenzie system range from 10,000 ML/a to 23,000 ML/a.

Depending on development of the necessary port and rail infrastructure, current estimates of industrial water demand from Nathan Dam range from 69,000 ML/a to 100,000 ML/a over the next 5-10 years.

1.3.2.2. Urban and irrigation demand

In 2008, SunWater also commissioned a demand assessment from potential urban and irrigation customers (Psi-Delta, 2009). When compared to the mining and industry assessment the results demonstrated that the coal mining sector was by far the predominant consumer for both short and long-term demand forecasts.

The expansion of mining operations in the Surat Basin is the main influence on population growth in both the Western Downs Regional Council and Banana Shire Council areas. Expanding mining operations will increase urban populations in the region, increasing town water demand. Towns including Biloela, Dalby, Chinchilla and Miles are all likely to

experience rapid growth and Western Downs Regional Council is predicted to require approximately 1,900 ML of additional high security water in the next 25 years (Psi-Delta, 2009).

Banana Shire Council is expected to see additional mining development in the region, which will impact town populations and town water supplies. Banana Shire Council estimates that Biloela is currently undersupplied by 900 ML, Banana and Moura are currently undersupplied by a combined volume of 200 ML (Psi-Delta 2009)

There is high irrigation demand for Nathan Dam water in the Dawson Valley. Water demand is dominated by the cotton industry, with large numbers of cotton growers interested in additional water allocation. Additional demand exists from cereal and fodder growers in the Dawson River sub-region. However uptake of new allocations by irrigation customers is likely to be limited due to the level of price sensitivity associated with the irrigation market. A market demand survey was conducted by Psi-Delta in 2008 which targeted all SunWater customers and DERM licence holders on the Dawson River from Taroom through to the confluence with the Mackenzie River. The survey indicated that there is irrigation demand in excess of 25,000 ML/a at $100 ML, with demand declining to 24,000 ML/a at $150 / ML before falling sharply at prices above $150 / ML. Only three irrigators indicated potential interest in new allocations at $400 / ML, and only one irrigator suggested any interest at $800 / ML.

Whilst pricing of allocations from the dam have yet to be determined, medium priority allocation products such as those typically utilised by the irrigation sector are likely to be in the order of $500 to $600 / ML annual charge. As discussed above, demand for water at this price point is likely to result in effectively no uptake of allocations by the irrigation industry. Subsequently the Nathan Dam project has been modelled on the basis that no new allocations will be provided to the agricultural sector.

1.3.3. Summary of demand and need

The outcome of the above discussion is presented in summary form in Table 1-2.

Table 1-2 Summary of projected new high priority demand for water from Nathan Dam

Sector	Demand (ML/a)
Coal Mining	
Surat Basin	49,000 - 65,000
Dawson-Callide	7,000 - 9,000
Nogoa Mackenzie	10,000 - 23,000
Power Generation	3,000
Urban	
Banana Shire	1,100
Western Downs	1,900
TOTAL	**72,000 - 103,000**

Source: SunWater demand studies

There is an excess of demand over supply in the serviceable region. The most recent demand forecasts predict that the full available supply from Nathan Dam could be used by the coal industry alone. For the purpose of scenario modelling for the EIS, SunWater has assumed that 18,311 ML/a of high priority water would likely service the southern Bowen Basin via the DVWSS and 47,700 ML/a would service the Surat Basin via a pipeline to the south. While no new

agricultural water is allocated, supplemented supply may be offered to replace the water harvesting opportunity lost as a result of operation of the dam. In this way the regional productivity from irrigated agriculture will not be reduced.

Growth in the coal mining industry is supported by significant private and government expenditure on a range of infrastructure projects including ports, rail and rolling stock, power and water. The Queensland government has, over recent years, developed a range of strategic planning and policy initiatives that support and coordinate this development. The Nathan Dam and Pipelines Project is recognised in all the relevant documents as the preferred alternative water supply in the region. The level of demand is such that the maximum storage capacity feasible at the dam site will ultimately be required to meet that demand.

1.4. Relationship to other projects

1.4.1. Water infrastructure projects

The Project is related to other water infrastructure projects that are part of the CQRWSS or the SWP with respect to the role each piece of infrastructure has in servicing the region. These include:

- Connors River Dam and Pipelines Project;
- Lower Fitzroy River Infrastructure Project including construction of Rookwood Weir and raising Eden Bann Weir; and
- Gladstone – Fitzroy Pipeline.

SunWater is the proponent for the Connors River Dam and Pipelines Project, and is a member of a partnership (with Gladstone Area Water Board and in cooperation with Rockhampton Regional Council) as proponent for the Lower Fitzroy River Infrastructure Project.

If approved and developed, Rookwood Weir, the raising of Eden Bann Weir and the Connors River Dam project all involve additional water storage infrastructure in the Fitzroy Basin and will all result in additional water allocations for consumptive use. These projects have been considered further in Chapter 27.

These projects are not considered secondary impacts or consequential actions in accordance with clause 527 of the Environment Protection and Biodiversity Conservation (EPBC) Act because they are independent projects that would progress through the approvals process irrespective of the Nathan Dam and Pipelines Project. Without Nathan Dam these projects would still proceed in order to meet demands in their respective sub-regions.

1.4.2. Coal seam gas projects

Coal Seam Gas (CSG) is an emerging energy resource in Queensland as gas production from other sources declines and demand for gas for electricity generation and industrial development increases (Queensland Government Department of Mines and Energy (DME), 2008a). Available resources are concentrated in the Bowen and Surat Basins (Figure 1-4).

Production of CSG generally involves the following steps:

- drilling wells into a coal seam;
- pumping out water to reduce hydrostatic pressure;
- extracting the methane released by the decrease in hydrostatic pressure; and
- pipeline transport of the gas to a port facility.

The water generated as a by-product of CSG projects is assessed as an alternative source of supply to that offered by Nathan Dam (Section 1.7.3).

These projects are not a potential user of water from the Project and neither activity relies upon the other in any way. However several are in the same geographic region, particularly with respect to the pipeline and they are included in the cumulative impact assessment (Section 27). The proponents of assessed projects include APLNG, QGC, Santos and Arrow.

1.4.3. Coal mining projects

The Project is related to coal mining projects because coal mining generates a large proportion of the demand for additional water. As noted above, there are numerous mines at various stages of development or assessment in the region (Figure 1-5). It is expected that if and when particular mines develop, the proponent of the mine will assess the water needs and the supply options available to it. The existence of the stored water in Nathan Dam and the availability of the trunk pipeline will form part of that assessment. Any mines, or other sources of demand, which choose this supply option, will require approvals. Those approvals will be based on assessment of the impacts of their water use and waste water disposal. This would also include any necessary further delivery infrastructure, such as lateral pipelines joining the trunk pipeline to the specific demand node. It is not possible to predict the path of these lateral pipelines at this point in time because the path will depend on the specific mine plan at the time. Similarly it is not possible to predict with any certainty when or in what order particular mines may be developed, which will be dictated amongst other things, by world commodity prices. However it is clearly a matter of State Government policy (via the Coal Infrastructure Strategic Plan) that the availability of services and infrastructure which support the mining industry will not be a hindrance to rapid development as and when required. This approvals process was followed recently by the Wandoan Coal project in that the proponents initially reviewed a range of water supply options and presented the two favoured options in their EIS. The options in that case were surface water or coal seam water. Initial options investigated included on-site water capture and groundwater.

Mining projects in the same geographic region may constitute cumulative impacts when assessed in conjunction with the Nathan Dam and Pipelines project. The majority of mining projects of relevance are along the pipeline and include Wandoan Coal and Wilkie Creek.

The Wandoan Coal project drives the need for the proposed Surat Basin Railway which runs from Wandoan to near Banana to link with existing rail networks.

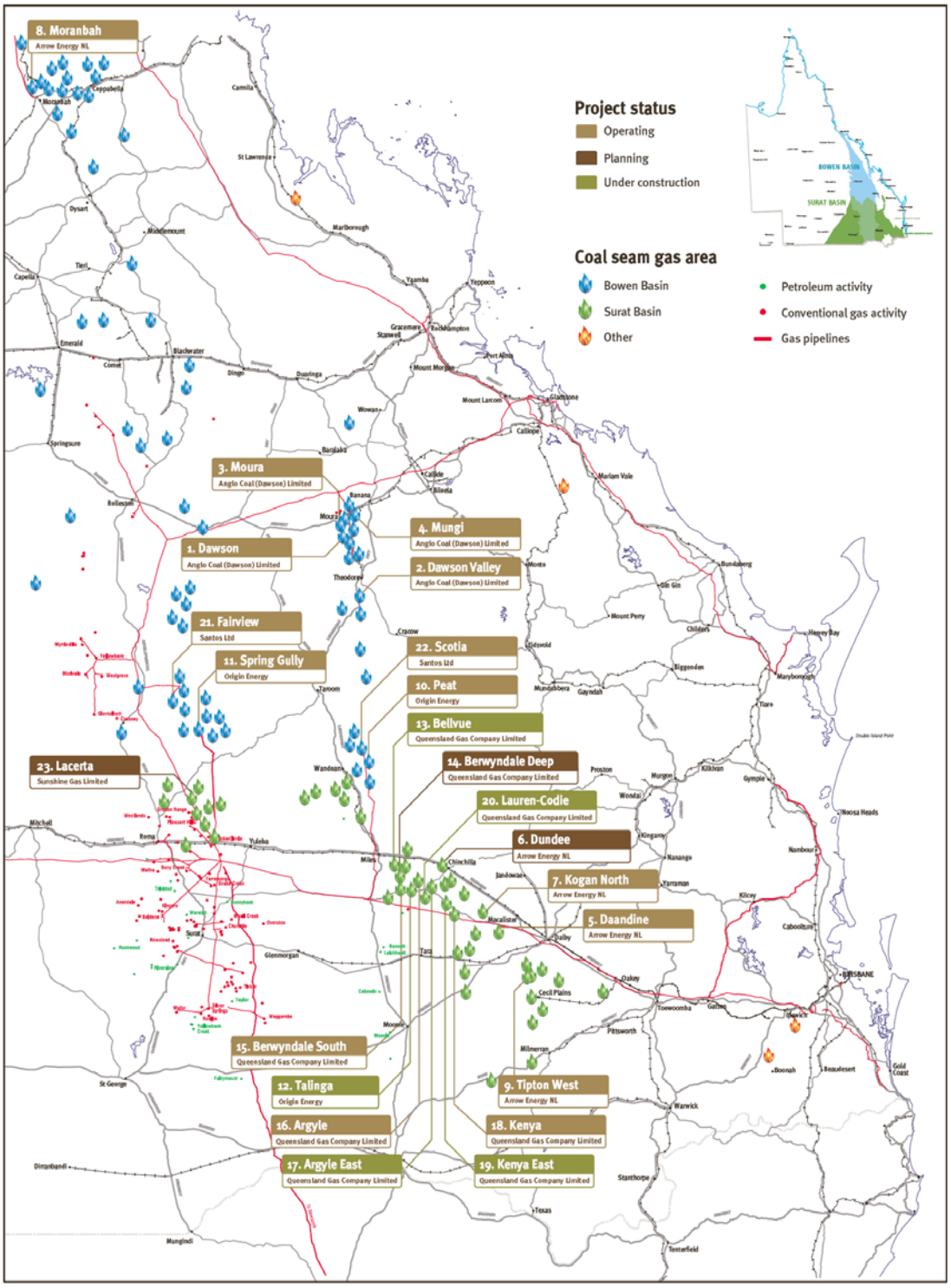


Figure 1-4 Coal seam gas projects in the Bowen and Surat Basins

Source: DME, 2008b

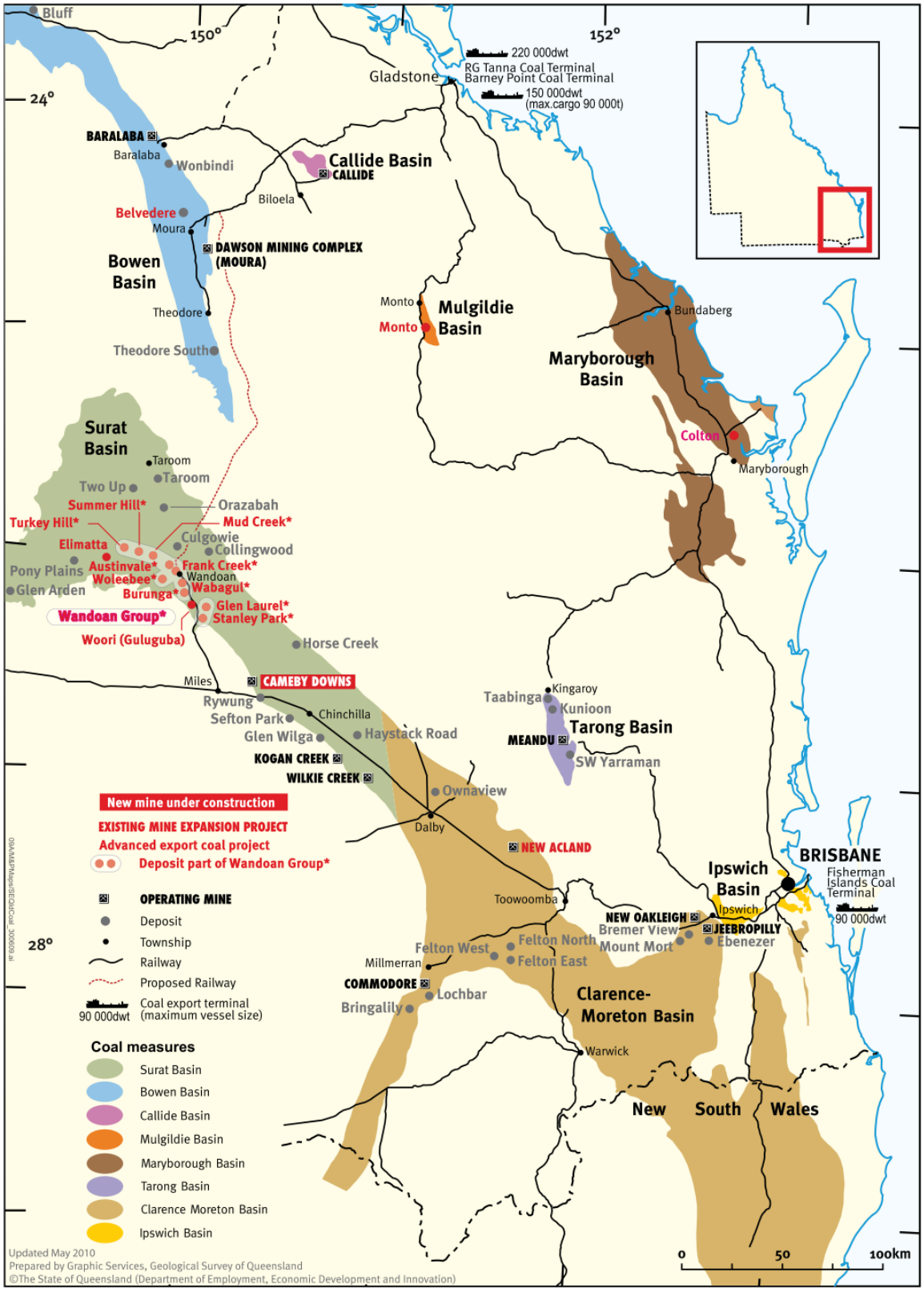


Figure 1-5 Coal resources, mines, advanced projects and rail infrastructure in south-east Queensland

Source: DME, 2008c

1.4.4. Consequential impacts

The EPBC Act definition of impact includes both direct and indirect consequences of an action. An indirect consequence can result from actions taken by a second person whether or not these actions were taken at the direction of the person who took the primary action. The primary action must, to a major extent, facilitate the secondary action.

The primary action in this case is the construction and operation of the Nathan Dam and Pipeline. In order to identify secondary actions SunWater has:

- reviewed the potential users or user groups of water from the Project;
- estimated the actions (potential secondary actions) that each user group may take as a result of the supply of water from the Project; and
- considered whether the supply of water facilitates to a major extent the secondary action.

1.4.4.1. Potential users of water from the Project

Potential users of the water include:

- coal mines in the Surat Basin and surrounds and the southern Bowen Basin;
- agricultural development downstream; and
- urban communities along the Dawson River and in the Surat Basin in the vicinity of the pipeline.

As described in Section 1.3, coal mining activities generate the majority of the demand for water from the Project. Demand for agricultural use is limited by the likely cost of supply of the water. Urban demand is a small component of overall demand. Urban water may be accessed by towns along the river as it is now, or from the pipeline based on commercial arrangements, similar to those for any other user.

1.4.4.2. Potential secondary actions related to the Project

As discussed in Section 1.4.3, as particular coal projects proceed, each project will assess potential sources of water. The Nathan Dam and Pipelines Project has been identified in the CQRWSS as the preferred option to meet water supply shortfalls, but this does not make any particular mining activity reliant on the Project.

A mine is primarily a consequence of the existence in that location of a mineral resource. The ability of the mining company to economically mine that resource relates to numerous factors including demand for the resource, commodity prices, the exchange rate, the ability of the mine to develop (or stimulate the development of) appropriate product transport (road, rail, ports, etc) and all the necessary supplies and services required to operate and maintain the mine such as power, water, waste disposal, a workforce, a means of transporting the workforce, etc. All of these factors and others must be satisfied before the proponent for the mine could undertake the assessment of impacts of their project which would be required as part of the approvals process. The Coal Infrastructure Program of Actions (Qld Government 2008) identified the key infrastructure needed to support the demands of the expanding coal industry. The Nathan Dam and pipelines infrastructure is a consequence of that demand.

Any new mine that may wish to access water from Nathan Dam would be required by law to obtain all necessary approvals and as part of this process to undertake appropriate impact assessment, including of impacts associated with their use, treatment and disposal of the water so supplied. Under current processes approval would not be granted if the impacts on MNES, related to any aspect of the facilities construction or operation, were unacceptable. As a result of the approvals processes that must be followed, the use of water supplied from Nathan Dam to any new mine or industrial facility could only be to a mine or facility that had received such approval. If approval has been granted then SunWater assumes any potential impacts on MNES have been assessed and are acceptable hence it is not required as part of the current Project to include these actions as indirect impacts.

It is anticipated that some existing mines will attempt to purchase rights to water from Nathan Dam. These entities would be expected to already have approvals in place for their current operations. If the improved water supply relates to a reliability issue and does not relate to an expansion of operations, then SunWater foresees no new actions. If expansion is the purpose of the water purchase then the approvals process is again triggered and the action would be referred to the Commonwealth if the potential for significant impact on MNES existed. If the proponent for the secondary action does not refer the action then it is assumed that no significant impact on MNES will occur.

Unsupplemented water supplies in the Dawson River will be negatively impacted by the Project and SunWater intends to compensate these entitlement holders either financially or through provision of a supplemented water supply. SunWater considers that the supply (as replacement) of relatively minimal volumes of medium priority water for agricultural use does constitute a secondary action. It is unlikely that this supply of water would facilitate new agricultural activity, and subsequently will not impact MNES. Similarly currently productive agricultural land (mainly grazing) will be lost to the water storage area. The nett effect on regional agricultural production is likely to be a small decrease with respect to grazing and maintenance of the status quo with respect to irrigation. Increased productivity may result from efficiency improvements. Potential impacts of agricultural use are discussed in this EIS and summarised in Section 27 and Section 28.

The Project has currently made allowance for the provision of up to an additional 8,000 ML of water to towns throughout the Dawson-Callide sub-catchment and the Surat Basin, if required. The Project does not include lateral pipelines to transport water to urban demand nodes. This additional volume will primarily increase the security of supply to existing centres, with only relatively small increases in the quantity of supply to each town. Population increases in this region will be primarily facilitated by growth in the mining industry. Improved water supply without an expansion of mining would be highly unlikely to stimulate urban growth. The proponent does not foresee any new actions arising as a result of this supply, hence no indirect impacts on MNES relate to this potential use of water from the dam.

1.4.4.3. Extent of facilitation of secondary actions

Based on the discussion above with regard to potential users of water from the Project and the foreseeable secondary actions arising from the Project, it is concluded that the Project:

- does not facilitate to a major extent coal mining activities;
- does not facilitate to a major extent urban growth; and
- does not facilitate to a major extent an expansion in agricultural activity.

An assessment of the consequential and cumulative impacts of the Project is provided in Chapter27. Consequential impacts as they specifically relate to the EPBC Act are also addressed in Chapter28.

1.5. Cumulative impacts

The ToR identifies two forms of cumulative impact:

- those impacts that relate specifically to the Project; and
- those impacts of the Project acting in combination with other known activities in the region/catchment including:

  a) other water resource development projects for which the proponent is responsible;

  b) other water resource developments for which the proponent is not responsible; and

  c) other known developments or types of development that may impact upon the same environmental values as the Project.

Cumulative impacts relating specifically to the Project include the combined effects of multiple impacts on both geographic locations and environmental values. For example, the nearest sensitive receivers to the dam construction site may be impacted by both noise and dust. Vegetation clearing may affect the environmental values of regional ecosystems at both the dam and pipeline locations. These potential cumulative impacts are assessed in Chapter27.

With respect to other known water resource developments in the region (Fitzroy Basin) that the proponent is responsible for, SunWater is the proponent for the following:

- Glebe Weir Raising on the Dawson River; and
- Connors River Dam on the Connors River.

SunWater is in partnership with Gladstone Area Water Board (and in cooperation with the Rockhampton Regional Council) as proponent for the Lower Fitzroy River Infrastructure Project which includes the construction of Rookwood Weir and/or raising Eden Bann Weir.

Gladstone Area Water Board is proponent for the Gladstone – Fitzroy Pipeline.

Each of the water resource related developments noted above, and the full use of existing entitlements in the Fitzroy Basin, will be examined in Chapter14 and Chapter27 with respect to cumulative impacts. This is particularly relevant to the additive effects of water extraction as they manifest in the estuary and nearshore environments, including in relation to the controlling provisions of the EPBC Act as triggered by this Project. However, cumulative impacts of water resource development will also address multiple physical barriers and the additive change in habitat from riverine to lacustrine environments, amongst other attributes (Chapter13).

SunWater is aware of numerous other potential developments that may impact upon the same environmental values as the Project. These are primarily mines or infrastructure projects such as power supply or roads (Projects Queensland 2008, Issue 27). The EIS will not address future potential projects. This is partly because many of these future projects are poorly defined, if at all, but also because from a cumulative impact perspective it is the responsibility of the proponent for the particular project to show that their project in conjunction with all existing and known development will

not take the environment beyond a sustainable level of development. Proponents of projects in the future will need to address the same issue with respect to the level of development that exists at the time and this may include the Nathan Dam and Pipelines Project if it is approved.

1.6. Socio-economic cost and benefits of the Project

Socio-economic costs and benefits of the Project are addressed in Section 25 and summarised below. Climate change risks are also addressed in Section 25.

1.6.1. Economic costs and benefits

The Project will provide an overall positive impact by providing additional water security to support the development of the coal mining industry, to ensure water supplies for regional urban centres, and to a degree opportunities for agricultural should proposed water prices be deemed viable for this sector. However, because the local community area economy is already relatively buoyant, due mainly to the mining activity, the Project impacts are likely to be dispersed more widely across the State and nationally than a similar project undertaken in a region with a less buoyant economy and more under-utilised resources.

The current global economic situation is unlikely to affect the Project impact as the global economy is expected to be well into recovery before the Project start.

The key economic benefit of the Project is the development of a secure water supply to meet forecast mining demand in the Surat Basin. Increased security of water for mining will ensure that this nationally important industry continues to operate efficiently and will provide more certainty for investment in the industry and the region into the future.

It is also important to note that some impacts will be temporary and largely driven by the construction process, whilst other impacts are more permanent in their nature and driven by the ongoing provision of water by the dam and pipeline. However, while there are very large on-going potential benefits related to the Project's completion, the bulk of these benefits are not included in this impact assessment as they are subject to additional and separate investment decisions (e.g. mining expansion plans) and not part of the terms of reference for this assessment.

1.6.2. Direct socio-economic costs and benefits

The direct capital cost of the Project is estimated at $1,400 million (at concept design accuracy) including $650 million associated with the dam and $750 million with the pipeline. Further estimated costs of $16.1 million per annum will be required for the operation and maintenance of the Project.

The construction workforce for each component of the Project includes:

- an average of 90 people for construction of the dam, peaking to 170 people during the dam construction period. This includes some 20-30 professional staff;
- an average of some 150 pipeline construction staff peaking at 220 people during pipeline construction including some 70 support staff; and
- approximately 35 road construction workers, plus professional staff.

Ongoing operation of the dam and pipeline will require some 4-5 direct full time positions.

Economic costs in the form of foregone production will also result from the project. The largest of these are agricultural losses where land once used for agriculture will form part of the storage and water storage area. The cost however is considered to be small relative to regional production (Section 25.2).

1.6.3. Flow-on economic and social costs and benefits

The Project will provide opportunities for local and regional businesses through demand for goods and services. These opportunities will assist in maintaining low regional unemployment and the buoyant regional economy and will create indirect employment opportunities, which would also have positive benefits for local residents.

However, as the local community area is in an already strong economic position there is a danger that the major potential indirect effect may be that the Project will, by increasing the demand for employment and accommodation, increase wage levels and housing prices. The Project proposes to source the bulk of the workforce from outside the local community area and to provide project accommodation for most of the workers in camps that will mitigate any inflationary effect. While this will mean that the indirect economic impacts of the Project on the community local area will be relatively small, there will also be a broader flow on effect across the Queensland and Australian economy.

Flow on employment created by the construction is estimated to create an additional 3,000 FTE job years employment in Queensland and a further 3,300 nationally. Ongoing operation of the dam and pipeline will create some 10-13 FTE flow on jobs. Given the nature of these operational jobs it is likely that a significant number of them will be located in the local area.

1.6.4. Demand for natural resources

As described in Section 2, the construction of the Project will create direct demands for resources such as rock, sand and road base and will generate indirect demand for resources associated with concrete and pipe manufacture. These demands are mostly limited in scale and duration, and are not likely to have significant impacts at a regional scale. However, the requirement for sand as bedding material for the pipeline is significant at a regional scale. Potential sand extraction sites have been identified, and these will be discussed with DERM as part of the resource allocation approval process.

During both construction and operation, there will be demands for water and energy (electricity) but these are considered minor at a regional scale.

1.7. Alternatives to the Project

The CQRWSS presents outcomes of investigations of a number of alternatives for meeting water demand to support ongoing economic growth and development in the Central Queensland region and recommends an integrated strategy (Section 1.3.3.4). The elements of the regional strategy include:

- trading water to maximise the economic effectiveness of supplies;
- improving the management of systems to optimise storage management, reduce losses and increase the availability of water for consumptive use;

- legislating to restrict water supply, ensure system leakage is minimised and develop drought management plans to minimise the impacts of drought on communities;
- increasing water use efficiency;
- considering the availability of groundwater;
- possible use of CSG water; and
- increasing the availability of supplies through the release of unallocated surface water and constructing additional storages.

The potential for efficiency gains was assessed as insufficient to cater for future growth of water requirements.

Sections 10.8 and 11.8 of the CQRWS Study (2005) present the results of a detailed assessment of the viability of available supply options for fulfilling future water supply requirements in the Dawson-Callide and Upper Dawson sub-regions respectively. The report outlines the results of a two stage assessment process which included engineering, social and ecological considerations. The report concludes that Nathan Dam is the preferred solution for the short to medium term water demands from urban, industrial, and irrigation sectors in both sub-regions.

In the Surat Basin the major surface water alternative is the Condamine River. That resource is already fully allocated, or over-allocated according to the Guideline to the Murray Darling Basin Plan (MDBA 2010). Groundwater in that region is also potentially over-allocated (MDBA 2010) so satisfaction of future demands need to come from outside the catchment or from coal seam water.

1.7.1. Recycling, system management and water use efficiency

The CQRWSS noted potential efficiency savings in the Lower Fitzroy of up to 19% of current rural and urban use. Water use measures to increase water use efficiency in the urban sector proposed by the CQRWSS include:

- addressing outdoor water use through appropriate pricing, permanent low level water restrictions, providing landscaping and irrigation advice, introducing retrofit programs, and auditing water use;
- introducing mandatory internal water use efficiency measures in new developments; and
- using recycled water as a resource.

Because of the distribution of population and industry, most of this water would be located in the Mackay, Rockhampton and Gladstone areas. This is remote from the main centres of demand for water from Nathan. Thus, recycling may play a role in providing water for major coastal centres but would not provide a viable alternative to the Project to supply the Upper Dawson and Dawson-Callide sub-regions or the Surat Basin.

In the industry, power generation and mining sectors the CQRWSS proposes to increase water use efficiency by:

- encouraging demand management through pricing structures;
- encouraging high volume users to undertake water efficiency audits and implement water use efficiency measures;
- monitoring technologies to reduce cooling tower water use;
- ensuring best practice water use technologies are used across the mining sector including:

- managing salinity associated with decreasing the ratio of water used per tonne of coal produced,
- removing barriers to using recycled water for dust suppression and coal preparation, and
- revising 'take or pay' supply arrangements that do not encourage water savings.

The *Water Act 2000* already includes provisions allowing the imposition of water restrictions covering the volume of water taken, the periods when water may be taken and the ways water may be used. It also includes requirements to manage drought and minimise system losses through the preparation and implementation of leakage management plans that:

- identify leakage losses;
- set out measures to be taken to reduce leakage;
- outline costs and benefits of implementing leakage management measures; and
- detail plans to implement cost effective measures.

Water may be used more efficiently in the rural sector by reducing distribution losses through increasing the use of pipelines and lined channels and through improving irrigation practices but the CQRWSS concludes that such water savings are likely to be used to increase production or maintain production in drier years with some potential for water trading.

Nevertheless, water savings from improved water use efficiency will be small in relation to the identified supply shortfalls across the region (Figure 1-4, Table 1-4).

1.7.2. Groundwater

The CQRWSS identifies groundwater as a limited supply source which satisfies some smaller urban requirements and stock and domestic water supplies across the region. The two notable exceptions are the Braeside Borefield in the Isaac-Connors sub-region, and the Callide Valley Groundwater Area which provides water for irrigation, urban and industrial purposes.

The Callide Valley contains what is probably the most significant groundwater resource in the Fitzroy Basin (CQRWSS Study 2005). The investigation and development of the groundwater resource commenced in the 1920s and 1930s. However it was not until the late 1950s and 1960s that significant development of the resource occurred. Original estimates of groundwater availability were found to be too high, and over many years a high level of groundwater withdrawal has resulted in sections of these aquifers becoming severely depleted. As a result, groundwater supply from this aquifer system is now severely restricted (CQRWSS Study 2005).

In the Surat Basin or Condamine catchment, as noted above the groundwater supply is currently considered to be over-allocated, particularly within the Condamine Alluvium.

1.7.3. Coal seam gas water

As previously described, the proposed pipeline for this project will traverse from Nathan Dam to Dalby, crossing a relatively large section of the north-eastern corner of the Surat Basin. This region is currently subject to a number of

proposals from coal seam gas (CSG) companies to increase gas production in the area for transport to Gladstone and subsequent export as Liquefied Natural Gas (LNG).

As the EISs for the relevant LNG projects have outlined, CSG production in the Surat Basin tends to result in the extraction of water from the coal seam. Pressure from water that exists within the coal seam keeps the gas adsorbed on the surface of the coal. Therefore, to extract coal seam gas, the water pressure needs to be reduced by allowing the water, known as 'associated water', to be released to the surface (APLNG 2010).

Whilst the absolute volumes of water that will be produced are difficult to predict, forecasts produced by DEEDI for a 'mid sized' LNG industry producing 28 Mtpa of LNG would result in the extraction of around 196 GL of water annually (Department of Employment, Economic Development and Innovation 2010). Assuming that CSG companies can successfully manage any impacts that may be associated with the water extraction process, there is an opportunity to beneficially use this water through consumption by towns, industry, and agriculture in the region.

SunWater is currently considering the option of utilising treated associated water in the Nathan pipeline to supply customers within the region, which if successful would introduce an option to delay the construction of the dam. SunWater is currently referring to the combined Nathan Dam / associated water supply scheme as the Surat Dawson Integrated Water Project (SDIWP). The concept involves the following key aspects:

- CSG companies treat all associated water through reverse osmosis and other associated processes to remove salt and other contaminants and create a water supply that is of a standard suitable for both placement into a watercourse and human consumption (whichever standard is the higher);
- CSG companies construct treated water pipelines from their treatment plants to the Nathan pipeline;
- SunWater distributes treated CSG water to water users in the region. It is anticipated that initially the volumes of associated water produced during the early years of LNG production will exceed total demand. Whilst this scenario continues there would be no requirement for construction of Nathan dam;
- over time, demand for water in the region is expected to increase, notably through the development of coal mining and power station projects. At the same time associated water volumes are expected to decrease as the gas wells mature and the water which binds the gas to the surface of the coal is progressively removed; and
- when demand for water exceeds the available supply, the dam will be constructed in order to deliver an uninterrupted supply to water users.

It is currently anticipated that demand for water in the region would necessitate the commissioning of the pipeline by 2016, with construction commencing in 2013. The exact timing of the dam commissioning will depend on the actual volumes of associated water produced and the level of demand that transpires.

The primary advantage resulting from the combination of associated water and Nathan Dam water supplies is the facilitation of beneficial use of associated water. Water supply customers such as towns, mines, powers stations, and other water users require water over the longer term. Typically CSG companies are unable to offer long term water supply security due to the uncertainty associated with their water production forecasts and the fact that current projections indicate that associated water volumes will decrease markedly across the region by around 2025. For example QGC's project near Chinchilla will have a peak associated water production of around 92 ML/day (or around

33,000 ML/a) but this is relatively short lived, being in the order of 3 years. The volume then rapidly declines to approximately 60 ML/day and is maintained at between 40 and 60 ML/d for approximately 8 years then tapers off, reaching 20 ML/day after a further 5-6 years. Not all of this water would potentially be available to SunWater because some may be re-injected into aquifers or recycled / re-used by other means.

By making the dam available as a second supply source, water users that have long term water supply requirements (such as large industrial clients or towns) are able to accept treated associated water supplies in the short term in the knowledge that the dam will provide the long term security that they require. As a result, the Nathan Dam and Pipelines project as originally proposed remains a real and viable project and is what is assessed in this document.

The viability of the SDIWP project is largely dependant on the water management options utilised by the CSG companies. If sufficient volumes of treated CSG water are provided to SunWater for subsequent distribution to supply customers then the option may proceed, however there are a variety of alternatives available to these companies which they may view as favourable to the Surat Dawson Integrated Water Project. In addition the regulatory regime surrounding the management of associated water is not finalised, and the CSG companies may be required to manage their associated water in a manner which does not facilitate distribution to supply customers. Should the option of distributing treated associated water through the Nathan Pipeline be deemed unviable, then the dam would be constructed as early as possible and is the scenario assessed in this EIS.

Under the SDIWP, extraction and treatment of associated water remains the responsibility of the relevant CSG companies and has been or will be addressed in their EIS documents. The connecting pipelines also remain the responsibility of these companies, and hence the impacts associated with the footprint of these pipelines will be managed by the CSG companies. Given that all water accepted into the Nathan Pipeline under the SDIWP will be of a quality suitable for introduction into a watercourse, SunWater does not envisage any impacts associated with potential pipeline leaks or breakages that would differ to normal operations utilising surface water extracted from the Dawson River. Potential impacts which may differ from that presented in this EIS relate to flow regime change in any receiving watercourse, flooding and water level fluctuations in the dam (because coal seam water rather than dam water would be used to satisfy customer demands) and water quality related issues. Different approvals would also be required (such as a Beneficial Use approval under the EPP (Waste)). Should the SDIWP become a reality, it will be referred to relevant agencies and undergo standard approval processes. Much of the information used in this EIS will be relevant to decisions related to the SDIWP.

1.7.4. Desalination

Desalination involves removal of salt from saline waters, generally seawater, to provide water of acceptable quality for the required use. Modern desalination plants generally use reverse osmosis technology, as is also used to treat CSG water. The input stream is saline water while the output streams are desalinised water, a concentrated brine solution and liquid sludge or solid sludge cake from filtration and chemical cleaning. These waste streams must be disposed of.

Desalination plants are generally located near the sea to provide a source of saline water and a repository for the more concentrated brine. Disposal of the brine stream in the waters adjacent to the Great Barrier Reef may result in environmental problems, depending on brine composition, depth, location of outfall, currents, and a number of other factors.

Desalination has high energy requirements and associated greenhouse gas production. The capital cost of the Queensland Government – Gold Coast City Council plant at Tugun was approximately $1.1 billion and annual operating costs are estimated at $47 million. This plant is capable of producing 45,000 ML/yr of potable water with an electricity usage of approximately 6.1 MWh/ML of water produced. In Central Queensland, pumping water from a coastal desalination plant to the higher altitude Surat Basin where most demand for water from Nathan Dam is likely to be, would incur significant additional costs.

Desalination will not provide a practical alternative to the Project because of the comparatively high capital and operating costs, pumping costs required to transport the water to centres of demand and the potential environmental impact of the brine stream on the waters of the Great Barrier Reef and coastal estuaries.

1.7.5. Surface water supplies

The CQRWSS takes account of Queensland Government policy that unallocated water will only be released where alternatives such as water trading, unused current water entitlements, or increasing water use efficiency have been fully explored. After considering other options the CQRWSS identifies four projects that have the potential to increase the sub-regional availability of surface water supply in the Central Queensland Region. These projects are Connors River Dam, Rookwood Weir, Raising Eden Bann Weir and Nathan Dam (Section 1.4.1). Raising Glebe Weir was identified as a low priority initiative to increase supply in the Dawson/Callide sub-region if Nathan Dam does not proceed. Wandoan Joint Venture recently submitted an EIS that included an option to raise Glebe Weir and the Coordinator General has recommended that the Project be approved.

Constructing Connors River Dam, raising Eden Bann Weir and constructing Rookwood Weir do not provide practical alternatives to the Project. The locations of these projects mean they cannot provide supply to meet anticipated demands in the Surat Basin demand area as they are required to satisfy demands in their own sub-region. Even if the water was available, the necessary pipelines to service the Surat basin would be prohibitively long and need to pump over the mountains that separate the sub-catchments hence adding substantially to pumping costs.

The Dawson Valley Appraisal Study, completed in 1994, was initiated in response to requests for increased water supply for irrigation and concerns as to the reliability of the existing supply in the Dawson-Callide sub-region (CQRWSS Study 2005). The study also recognised the potential for further development of the vast coal reserves that underlie most of the valley, & for possible industrial development based on coal.

The study reviewed some 35 dam sites and 25 weir sites previously identified. Some of these were not considered further because of small catchment areas, and because some weir sites had been affected by existing storages. A total of 19 dam sites and 15 weir sites were initially compared using dollar cost per megalitre of yield as a basis. From this comparison five dam sites and five weir sites were chosen for more detailed assessment. This included four dam sites and one weir site in the study area. Of the large dam options considered at Baroondah, Nathan and Woolthorpe, the Nathan Dam option was shown to be clearly superior on cost and yield bases.

1.7.6. Combinations of alternatives

Those potential supply sources that are ruled out because they are currently over-allocated (groundwater) equally cannot be used as part of any combination. Combining any of the remaining alternative sources of supply generally results in all of the impacts related to development of each independent source as well as cumulative inefficiencies

related to the need to develop multiple pipelines from the various sources to the area of use, incurring multiple pumping costs and associated greater scheme management needs and operational costs. For example use of recycled water is most efficient if used near the point of first use or disposal (coastal cities and industrial areas) whereas pumping it a long distance and lifting it to a higher altitude to an alternative area of use negates the efficiency gain. The same logic dictates that desalination would only be feasible when related to near coastal uses, irrespective of whether it was assessed as an alternative to the total supply potentially available from Nathan dam or just part of it. In the current circumstances the only local sources of supply are surface water and potentially, coal seam water.

1.7.7. 'Do nothing' option

The SWP states that water is fundamental to the world-class quality of life in Queensland, to economic growth, and to our environment and notes that population and economic growth increases pressure on existing water supplies. Climate variability and climate change compound these pressures, increasing the need for a range of water management strategies that includes diverse supply sources and locations.

The CQRWSS includes a detailed risk analysis that considers the following risks:

- climate change / climate variability;
- water demands;
- availability of supply;
- environmental issues;
- social issues;
- economic and financial issues; and
- stakeholder interests.

Key mechanisms identified to mitigate the risks identified include:

- regular reassessment of the ability of existing sources to meet existing demands;
- regular reassessment of the ability of new sources to meet demands;
- regular updating of demand projections;
- assessment of new source options to establish appropriate certainty regarding development timeframes;
- initiation and management of process for the development of new sources of supply in a timely and effective way;
- expansion of environmental monitoring; and
- maximisation of certainty and minimisation of risk for the development of new water sources adequately in advance of needs.

As with the SWP, the CQRWSS highlights the importance of secure, sustainable water supply in supporting lifestyle, growth and prosperity.

To do nothing in relation to increasing the availability of water supply in Central Queensland and particularly the Bowen Basin is not an acceptable option in the light of these Queensland Government imperatives. Doing nothing would mean the desired quality of life and economic growth would not be achieved. The various demands, represented by real projects in the region, would not be met and progress would not occur. The various direct employment and economic benefits associated with construction of the project would not occur.

1.7.8. Within-Project alternatives

1.7.8.1. Dam

The dam types considered for the preliminary design of Nathan Dam included Concrete Faced Rockfill (CFRD), Roller Compacted Concrete (RCC) and Earth and Rockfill (E&RD). The configuration of alternative arrangements is heavily influence by site conditions which includes artesian pressures within the sandstone foundation and relatively low shear strengths on sandstone bedding.

Due to the challenges that would be involved in exposing the sandstone foundation and managing groundwater for the CFRD arrangement this option was not considered in detail.

It was considered that the most suitable dam types for the site would be either an RCC dam or an E&RD. Both types were investigated thoroughly and a comparison made between the two.

The RCC arrangement has some considerable disadvantages over the E&RD including:

- Wide relative cross-section to achieve stability,
- Exposing the aquifer during construction and an associated dewatering requirement,
- Proximity of suitable aggregate source, and
- Relatively high capital cost.

As most of the construction materials for the E&RD are available near the dam site, as it is not affected by sandstone strengths, and has the least groundwater management requirements it has been concluded that the earth and rockfill dam is the most suitable dam type and has been adopted.

1.7.8.2. Pipeline

A number of alternative pipeline routes were assessed at the commencement of the Project (Figure 1-6). All of these routes have followed the most direct path from Nathan Dam to Wandoan for the northern-most section of the alignment given the relatively large potential customer base that exists in this area. The most notable is the Wandoan Coal Project (WCP), but other demand nodes also exist in the form of other coal mining developments such as Northern Energy's Ellimatta project and the reserves held by Cockatoo Coal such as Woori and their joint venture operations with Mitsui Coal at Collingwood and Taroom. There are also plans by the Wandoan Power consortium to construct a clean coal power station at Wandoan, which would represent another significant demand source for the Project.

It should be noted that there is a possibility that SunWater will need to construct two pipelines along this northern section of the alignment; the Glebe Weir to WCP pipeline, which has been recommended for approval by the Coordinator General, and the Nathan Pipeline.

The need for two pipelines stems from the timing of the two projects, with Xstrata requiring a water supply in 2013 when the Nathan project would only be commencing construction, should it be approved. However it is SunWater's preference to amalgamate the two pipelines if possible, and as both projects proceed and their approval and construction timeframes become certain, every effort will be made to proceed with a single pipeline.

The major variation in pipeline alignment options commence south of Wandoan. Initially three main options were examined, including:

- Option 1: A direct route from Wandoan to Dalby, traversing through the Barakula State Forest;
- Option 2: A route that departs the Leichhardt Highway approximately 20 km south of Wandoan and takes a relatively direct route to Chinchilla whilst traversing around the southwest corner of the Barakula State Forest; and
- Option 3: A route that attempted to stay largely within the Leichhardt Highway road reserve to Miles, then the Warrego Highway road reserve through to Dalby.

Whilst Option 1 represented the shortest (and therefore the least capital intensive) option for the alignment it was discarded given the environmental impacts to the State Forest.

SunWater's initial planning had focused on option 3, with the primary driver for this option being the opportunity to avoid private property impacts by restricting the pipeline to the road reserve. However further assessment of this option revealed a number of difficulties with this strategy, including:

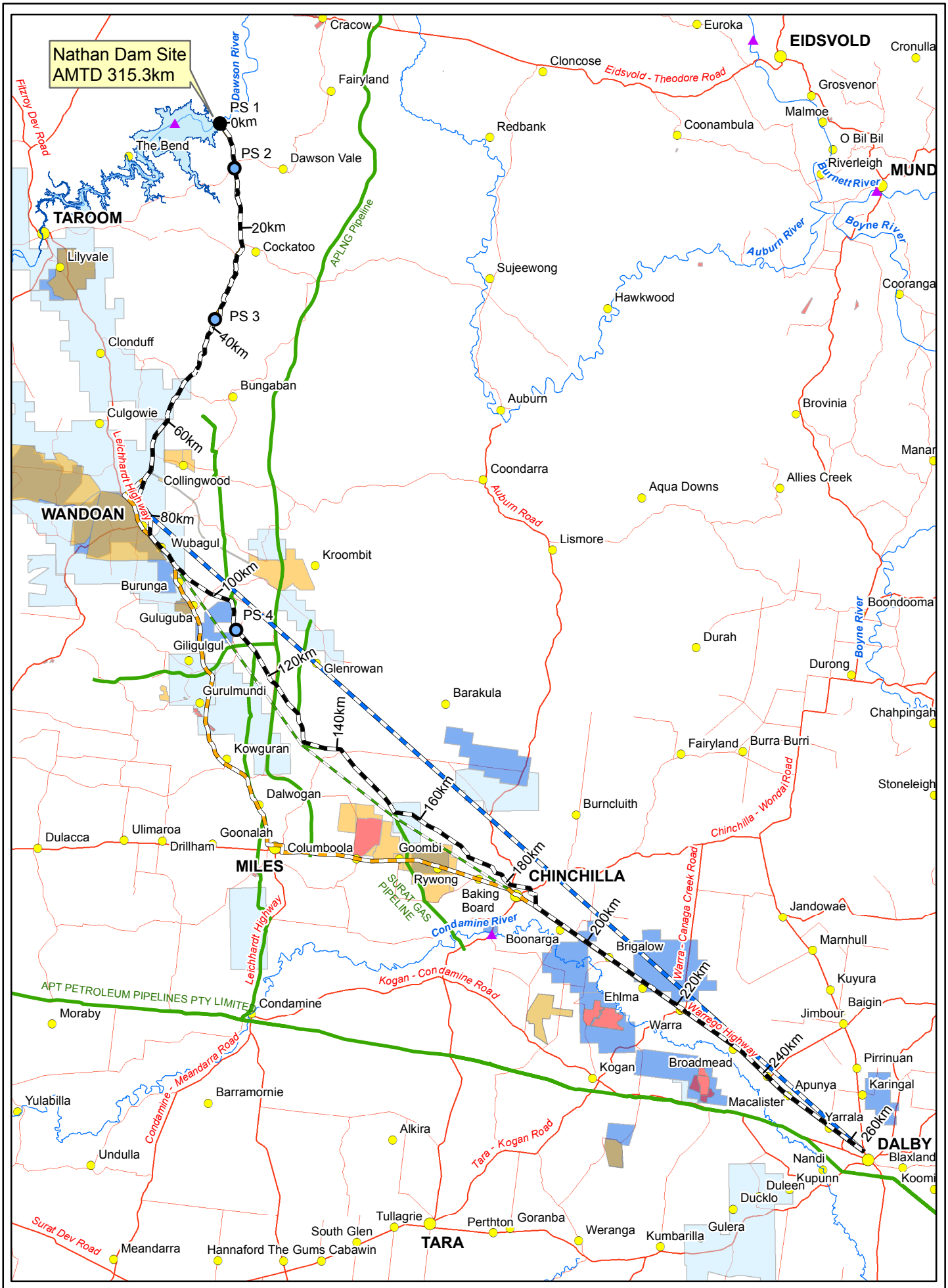
- in some instances the road reserve does not offer sufficient width to contain the required operational easement, meaning the pipeline would encroach onto private property anyway;
- in the majority of the highway road reserve there is insufficient room to contain the required construction easement. This meant that in most circumstances the fence line adjoining the highway would need to be knocked down and replaced, with a construction easement required within the adjoining property, thereby failing to achieve the objective of avoiding disturbance to landholders;
- the construction process would necessarily impact traffic on both highways throughout the entire two year construction period;
- given the speed of traffic on the highway there is a significant risk of accidents occurring during the operational phase of the project when maintenance vehicles are stopping at regular intervals to conduct inspection and maintenance activities;
- future upgrades are planned for the Warrego Highway that would either risk damage to the pipeline or in a worst case scenario require the pipeline to be relocated;
- the route is approximately 20 km longer than option 2, thereby adding in the vicinity of $30-40 M to the capital cost of the pipeline; and
- with the exception of the town of Miles (which could potentially supplied by a small lateral offtake from the main pipeline), there have been limited demands identified along the highway route between Wandoan and Chinchilla.

Subsequently pipeline option 2 was selected as the preferred alignment. This option provides a more direct route than option 3, and offers the potential to service the vast majority of SunWater's projected customer base whilst avoiding sensitive environmental areas. A number of local roads exist through the section that departs from the highway, and these will be used in preference to private properties where possible.

The horizontal alignment of Option 2 has been progressively refined during the preliminary design phase of the pipeline through the assessment of a number of factors, including:

- avoiding topographical extremes, such as steep, rough and unstable terrain. The alignment avoids hill peaks and sudden changes in topography outright, or, where this was not possible, by minimising the effects by utilising natural saddles;
- identifying co-location opportunities with existing infrastructure such as the Surat Gas Pipeline, which is followed between chainages 130 km and 150 km, and road reserves where feasible;
- avoiding National Parks, nature reserves and designated, or potential, heritage and conservation areas. As previously outlined, the pipeline route traverses around the southeast boundary of the Barakula State Forest, rather than taking the more direct route through it;
- avoiding existing coal mining tenures. Given the proliferation of Exploration Permit for Coal (EPC) tenures in the region complete avoidance of these areas is essentially impossible, however complete avoidance of Mineral Development Licences (MDL's) and Mining Leases (ML's) has been achieved. For example, the pipeline route was significantly altered to traverse around the northeast corner of Xstrata's MDL 224 near Guluguba rather than the originally preferred route through the middle of the tenure;
- minimizing extreme directional changes (consistent with route length minimization); and
- minimizing river and creek crossings.

The selected pipeline route is described in further detail in Section 2.2.2.



LEGEND

- Pump Station
- Pump Station & Balancing Storage
- Gas Pipeline

Mining Leases
- Application
- Granted

Mineral Dev. Licences
- Application
- Granted

Nathan Dalby Pipeline
- Option 1
- Option 2
- Option 3
- Final Alignment

Projection: GDA94 Zone 56

Figure 1-6

0 5 10 20
Kilometres
Scale 1:900,000 (at A4)
SW 237633C

SKM SunWater Making Water Work

NATHAN DAM AND PIPELINES EIS

Nathan Dam to Dalby Pipeline

1.8. Co-location opportunities

Co-location is the use of an existing easement for all or part of the construction and operational needs of the Project. The pipeline route has considered co-location opportunities throughout the design process. Co-location has many advantages, mainly relating to minimising environmental impacts, but it also carries commercial and legal risks for the infrastructure owners. For example the primary tenure holder in an easement generally absolves themselves from any impacts on the infrastructure of a second co-locating party, meaning that if, when conducting maintenance on their infrastructure they damage the infrastructure of the other party, the second party carries the cost. Similarly if the primary tenure holder, such as a road authority, decides to re-align part of the road, the second party is forced to relocate their infrastructure at their own cost. These risks do not exist when the infrastructure is located within its own designated easement.

During the development of the pipeline route SunWater has focused on minimising the impacts of the planned infrastructure on property owners. SunWater is very cognisant of the fact that the Surat Basin is currently the subject of a large amount of mining and coal seam gas development, and that many of the property owners impacted by the pipeline route are also impacted by other developments. The primary opportunity for avoiding impacts to landholders is through the placement of the pipeline in road reserves, and by co-locating the pipeline with other infrastructure (notably other pipelines) or along property boundaries to avoid infrastructure being spread across properties. Examples of this route selection process include:

- chainage 9 km to 73 km – Nathan Road. SunWater is currently developing the Glebe Weir pipeline for Xstrata's Wandoan Coal Project. Depending on the approval timeframes for both projects there may be an opportunity to construct a single pipeline rather than two pipelines as currently proposed. Should this be the case SunWater will utilise the Glebe route as a preference, which is substantially in the road reserve for its entire length. Should two pipelines be required (which could result if the Nathan approval is delayed and Xstrata need to proceed) then the Nathan pipeline would be constructed as close to the Glebe line as possible;
- chainage 130 km to 150 km – Surat Gas Pipeline (SGP). SunWater has altered its original route to the north of Miles to co-locate with the SGP alignment, thereby restricting construction and operational disturbance for the two projects in this area. SGP have been consulted regarding this process and are in agreement that this offers the best outcome for landholders, and have provided their horizontal alignment and other data to SunWater to enable this process to occur; and
- chainage 180 km to 260 km – Council road reserves. Between Chinchilla and Dalby sections of Council road exist to the north of the Warrego Highway where opportunity exists to place the pipeline. At present Optus is planning to construct an optic fibre cable in this road reserve which will occur prior to the construction of the pipeline which may limit SunWater's ability to utilise this road reserve for placement of the pipeline. Consequently it has been necessary for SunWater to plan on placing the pipeline along the inside of property boundaries to the north of this reserve. SunWater will liaise with Optus to encourage placement of the cable to the southern extremity of the reserve in order to maximise the chances of moving the final pipeline alignment into the road reserve.

1.9. The Environmental Impact Assessment process

The information in this section is based on the Terms of Reference (ToR) for the EIS prepared by the Coordinator General.

On 19 January 2008, the proponent lodged an Initial Advice Statement (IAS) for the Project with the Queensland Coordinator-General (CG). The IAS provided an outline of the Project, including the Project rationale and its potential impacts.

On 18 April 2008, the CG declared the Project to be a "significant Project for which an EIS is required", pursuant to section 26(1)(a) of the *State Development and Public Works Organisation Act 1971* (Qld) (SDPWO Act).

On 30 July 2008, the Commonwealth Minister for the Environment, Heritage and the Arts determined that the Project is a "controlled action" under the EPBC Act due to the likely potential impacts on matters of national environmental significance. The controlling provisions under the EPBC Act are:

- sections 12 and 15A (World Heritage properties);
- sections 15B and 15C (National Heritage places);
- sections 16 and 17B (Wetlands of International importance);
- sections 18 and 18A (Listed threatened species and communities);
- sections 20 and 20A (Listed migratory species); and
- Sections 23 and 24A (Marine Environment).

As a consequence, the Project requires assessment and approval under the EPBC Act. The Australian Government has accredited the EIS process, to be conducted under the SDPWO Act, under a Bilateral Agreement between the Australian and Queensland Governments. This will enable the EIS to meet the impact assessment requirements under both Australian and Queensland legislation. The Project will require approval from the responsible Commonwealth Minister under Part 9 of the EPBC Act before it can proceed.

The Department of Employment and Economic Development and Innovation (DEEDI) is managing the EIS process on behalf of the CG. The DEEDI has invited relevant Australian, Queensland and local government representatives and other relevant authorities to participate in the process as advisory agencies.

1.9.1. Methodology of the EIS

The methodology used to prepare the EIS accords with standard procedures for the undertaking of an Environmental Impact Study. Figure 1-7 shows the key steps in preparing the EIS. It should be noted that some of these steps may be undertaken concurrently. Some of the background studies and collection of data commenced during the process of evaluating the Nathan Dam site.

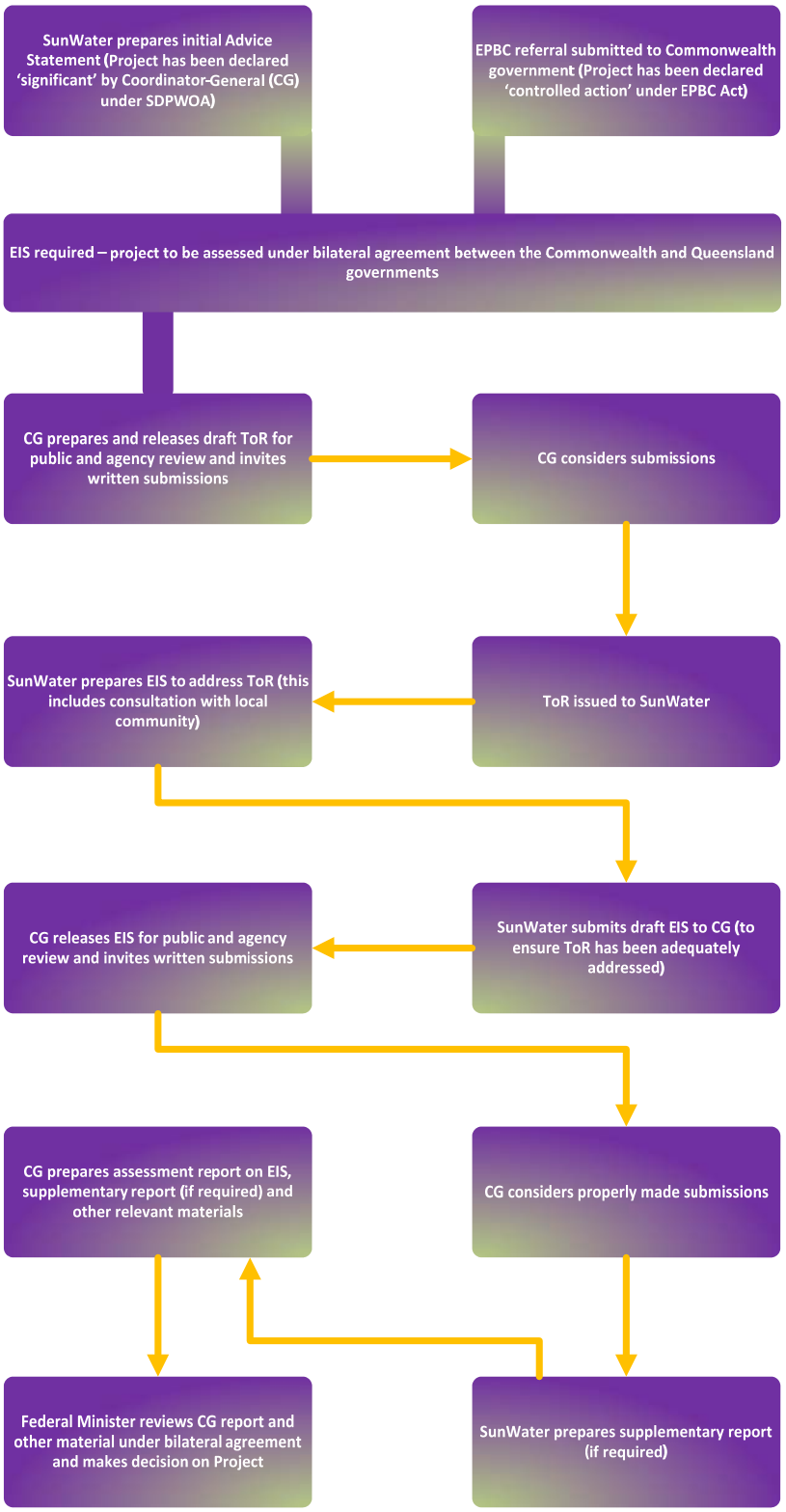


Figure 1-7 Key steps in EIS preparation

The Draft ToR for the EIS was prepared by the CG and made available for public and advisory agency comment between 13 September and 17 October 2008. A ToR was issued on 13 February 2009 and is attached as Appendix 1A-1. The EIS has been prepared in accordance with the ToR and to satisfy the requirements of both the SDPWO Act and EPBC Act.

The EIS will be available throughout the public display period, during which submissions may be made by any interested party. After consideration of the EIS and submissions, the CG will review the EIS and may require a Supplementary Report to be prepared to address specific issues. The CG will then prepare a report evaluating the EIS (and Supplementary Report if it is required) and other related material. The CG's report will be publicly notified, and a copy provided to the Federal Minister to enable the decision-making process under Part 9 of the EPBC Act to commence.

Approvals required under State legislation will generally be sought following the publication of the CG's evaluation report.

For any development approvals required under the Sustainable Planning Act 2009 (Qld) (SPA), the CG's report may state one or more of the following:

- the conditions that must attach to the development approval;
- that the development approval must be for part only of the development; or
- that the approval must be preliminary approval only.

Alternatively, the CG's report may state:

- that there are no conditions or requirements for the Project; or
- that the application for development approval must be refused.

Further details of relevant legislation, Project approvals, planning processes and standards are provided in Section 1.11.

1.9.2. Objective of the EIS

The objective of the EIS is to ensure that all potential environmental, social and economic impacts of the Project are identified and assessed and, where possible, how any adverse impacts may be avoided or mitigated. Direct, indirect and cumulative impacts must be fully examined and addressed. The Project, including selection of the preferred pipeline alignment, should be based on sound environmental protection and management criteria.

As outlined in sections 1.3 and 1.7 the EIS also provides information on the need for the project, alternatives to it and options for its implementation and set out acceptable standards and levels of impacts (both beneficial and adverse) on environmental values in Chapters 4 to 29. The EIS document provides information for the following persons and groups, as the Project "Stakeholders":

- affected persons: groups or persons with rights or interests in land, as defined under section 38 of the *Environmental Protection Act 1994* (Qld) (EP Act) or water, as defined under the *Water Act 2000* (Qld): an outline of the effects of the Project on that land, including access arrangements;

- interested persons: groups or persons identified by the proponent, as defined under section 43(3)(b) of the EP Act: a basis for understanding the Project, prudent and feasible alternatives, affected environmental values, potential impacts that may occur and measures to mitigate potential adverse impacts;
- advisory agencies: a framework for decision makers to assess the environmental aspects of the Project with respect to legislative and policy provisions and based on that information to make an informed decision on whether the Project should proceed or not and if so, on what conditions, if any; and
- the Commonwealth Minister for Sustainability, Environment, Water, Population and Communities: information to determine the acceptability of potential impacts of the Project on Matters of National Environmental Significance (MNES), in particular the controlling provisions under the EPBC Act:
  - sections 12 and 15A (World Heritage)
  - sections 15B and 15C (National Heritage place)
  - sections 16 and 17B (Wetlands of International importance)
  - sections 18 and 18A (Listed threatened species and ecological communities)
  - sections 20 and 20A (Listed Migratory Species); and
  - Sections 23 and 24A (Marine Environment).
- the proponent: a mechanism by which the potential environmental impacts of the Project are identified and understood. Information to support the development of management measures including environmental management plans (EMPs), to mitigate the adverse effects of residual environmental impacts of the development.

The content of the EIS is determined by the requirements of the EPBC Act, the SDPWO Act, the regulations made under those Acts, and the ToR issued by the CG

Chapters 4 to 29 provides information to support the formulation of the Draft environmental management plan presented in Chapter 30 of the EIS

Details on MNES are provided in Chapter 28.

The EIS contains the most significant information available to decision makers when considering approvals for the Project, although it will not avoid the need for SunWater to provide all information required under the relevant legislation for individual approvals.

The EIS is intended to provide Stakeholders with sufficient information to understand the type and nature of the Project, the potential environmental, social and economic impacts (both positive and negative), and the measures proposed by the proponent to avoid or mitigate all adverse impacts on the natural, built and social environment. It should be recognised that the Australian, Queensland and local governments, special interest groups and the general public will have an interest in the EIS.

All phases of the Project are described in the EIS including pre-construction, construction, operation and maintenance of all Project related sites. Direct, indirect and cumulative impacts are identified and assessed with respect to the environmental values of the Project area and its potential area of impact.

Specifically, the EIS includes:

- an executive summary;
- an overview of the proponent and its operations;
- a description of the Project's objectives and rationale, as well as its relationship to strategic policies and plans;
- a description of the entire Project, including associated infrastructure requirements;
- a description of feasible alternatives capable of substantially meeting the Project's objectives;
- an outline of the various approvals required for the Project to proceed;
- descriptions of the existing environment, particularly where this is relevant to the assessment of impacts;
- measures for avoiding, minimising, managing and monitoring impacts, including a statement of commitment to implement the measures;
- rigorous assessment of the residual risks of environmental impacts arising from the Project and relevant alternatives on environmental, social and economic values, relative to the 'no Project' scenario;
- a description of the Stakeholder consultation undertaken; and
- responses to issues raised during public and the Stakeholder consultation;

In preparing the EIS, the approach to be adopted requires that:

- predictions of environmental impacts are based on soundly based studies;
- the EIS is to present all technical data, sources of authority and other information used to assess impacts;
- the methods used to undertake the specialist studies are outlined, together with the relevant assumptions and professional or scientific judgments;
- the reliability of investigations and predictions is indicated, including the estimated degree of certainty or if possible, statistical confidence wherever appropriate;
- proposed measures to mitigate and manage identified issues are described; and
- residual impacts that are not quantifiable are described qualitatively, in as much detail as reasonably practicable.

The assessment of environmental impacts encompasses both potential impacts on, and uncertain risks to, the environment. The level of investigation of potential impacts or particular risks is proportionate to both the severity of the potential consequences of possible events and the likelihood of those events occurring (i.e. a risk management approach). Any prudent and feasible alternative approaches to management or mitigation are discussed and treated in sufficient detail, and reasons for selection of the preferred option are clearly identified.

The EIS states the criteria adopted in assessing the Project and its impacts, such as compliance with relevant legislation, policies, standards, community acceptance and maximisation of environmental benefits and avoidance or minimisation of risks.

1.9.3. Risk assessment and management methodology

A risk assessment and management framework has been developed to identify, prioritise, manage and compare the environmental, social and economic risks associated with each aspect of the Project. This framework is based on Australian Standard ISO/AS/NZS 31000: 2009 Risk Management Principles and Guidelines. The approach to risk assessment and management is described below, while the specific assessment and results are presented in each relevant section of the EIS based on the risks to each of the identified environmental values.

Hazard Identification

The risk analysis is conducted on those hazards identified to be of concern with regard to the construction and operation of the Project. These hazards are identified and discussed in each technical section. Selected examples of possible hazards may include:

- changes to the landscape within the Project area;
- soil erosion from disturbed areas and runoff into adjacent waterways;
- loss of terrestrial vegetation and fauna habitat;
- changes in hydrology and/or water quality in waterways; and
- social impacts related to the influx of construction staff.

Risk Analysis

Risks may have either negative or positive outcomes. While the EIS describes a range of potential adverse impacts, there are also beneficial impacts such as increased security of water supply, economic benefits and social benefits associated with the Project.

The Project planning and design process has already identified and responded to a range of risks, based on SunWater's extensive experience from similar projects. Those responses are incorporated in the Project, as detailed in the Description of Project (Chapter 2). The initial risk assessment is based on the inclusion of those elements of planning and design that reduce the likelihood and/or consequences associated with each hazard. The level of risk associated with each hazard is determined by taking into account the potential consequences and the likelihood of occurrence. Likelihood was ranked using the assessment criteria shown in Table 1-3.

Table 1-3 Likelihood table

Category	Frequency	Probability of occurrence during works or operation
Absolute	Part of the scope of work and will occur	1
Likely	Likely that the risk will occur and that the control measures will fail resulting in the stated consequence level.	0.1
Possible	Possible that the risk will occur and that the control measures will fail resulting in the stated consequence level.	0.01
Unlikely	Unlikely that the risk will occur and that the control measures will fail resulting in the stated consequence level.	0.001
Rare	On a rare occasion that the risk will occur and that the control measures will fail resulting in the stated consequence level.	<0.001

Consequence was ranked according to definitions applicable to each area of investigation (i.e. terrestrial flora, social, occupational health and safety). The consequence tables for each area of investigation are provided in Appendix 1B. Table 1-4 presents the consequence scale used for terrestrial flora, as an example.

Table 1-4 Example consequence table (terrestrial flora)

Category	Definition
Catastrophic	Permanent impact on a significant species or community (as defined by legislation) over the catchment leading to extinction or a recovery period greater than 20 years.
Major	Permanent impact on a significant species or community (as defined by legislation) at a population scale leading to extinction or a recovery period greater than 10-20 years.
Moderate	Permanent impact on a significant species or community (as defined by legislation) at a population scale not leading to extinction or a recovery period greater than 5-10 years.
Minor	Impact is present but not to the extent that it would impair a flora species or community. Temporary changes, which would be within the range of natural variation for the species or community.
Insignificant	No or negligible impact on flora species or community or if impact is present, then not to an extent that would draw concern from regulator authorities

The consequence and likelihood ratings were then used to classify the level of risk using the risk matrix shown in Table 1-5. SunWater has a Health, Safety and Environment Risk Assessment procedure as part of its corporate Environmental Management System. This will be applied to the detailed design, construction and operation of the Project. The risk assessment in the EIS is generally consistent with the SunWater system.

Table 1-5 Risk matrix

	CONSEQUENCE RATING				
LIKELIHOOD	INSIGNIFICANT	MINOR	MODERATE	MAJOR	CATASTROPHIC
ABSOLUTE	Low	Medium	High	Extreme	Extreme
LIKELY	Low	Medium	High	High	Extreme
POSSIBLE	Low	Medium	Medium	High	Extreme
UNLIKELY	Low	Low	Medium	Medium	High
RARE	Low	Low	Medium	Medium	Medium

Risk Mitigation

For any risk assessed as medium or above, mitigation measures to reduce the risk to as low as reasonably practical are considered. The effectiveness of mitigation measures in reducing the risk is assessed on a scale of slight, moderate, significant or complete. The residual risk after mitigation is then re-assessed using the above procedure. If residual risks are above medium, further mitigation measures are considered or an offset strategy is proposed.

1.9.4. Submissions on the EIS

Submissions regarding the EIS may be made by any Affected Person (primary stakeholder) or an Interested Person (secondary stakeholder) during the EIS public notification period.

In accordance with the requirements of the CG, a Public Notice has been placed in newspapers circulating in the local area, the State and nationally. This notice stated:

- where copies of the EIS are available for inspection;
- where a copy of the EIS may be obtained (at a cost of $300 per hard copy or free of charge if on CD);
- that submissions may be made to the CG about the EIS; and
- the submission period, being 23 April 2012 to 5 June 2012 which is the period nominated by the CG during which a submission may be made.

Submissions regarding the EIS should be received on or before the last day of the submission period. Submissions are to be written, either electronically or hardcopy, signed by each person making the submission and they must state the name and address of each person who made the submission, the grounds of the submission and the facts and circumstances relied on in support of those grounds and addressed to the CG at the address stated below:

EIS Project Manager—Nathan Dam and Pipeline Project

c-/ The Coordinator General

The Department of State Development Infrastructure and Planning

PO Box 15009

City East QLD 4002

tel +61 7 3224 2171

email: NathanDam@coordinatorgeneral.qld.gov.au

A submission made as outlined above will be a properly made submission that must be considered by the CG in preparing the evaluation report. The CG may accept a written submission that is not a properly made submission. Any submission accepted by the CG, may be amended by written notice given to the CG during the submission period or may be withdrawn at any time before a decision is made about the EIS.

For any development approval under the SPA that is for a material change of use, or requires impact assessment, Section 37 of the SDPWO Act states that the information and referral and the notification stages do not apply, but that any properly made submission to the CG is a properly made submission about the application for any such development approval. Any person who wishes to make a submission about any such development approval should therefore make a submission about the EIS in order to gain standing for any appeal regarding any such development approval.

1.10. Public consultation process

An extensive consultation program has been undertaken since April 2008 and is on-going. A variety of communication activities and tools were used to seek broad community input, and the issues and opportunities identified through stakeholder engagement informed the development of the EIS technical studies.

The objectives of the consultation program were to:

- ensure factual, timely and relevant information is available to stakeholders at all stages of the EIS process;
- facilitate stakeholder and community involvement and feedback throughout the EIS process;
- ensure the stakeholder and community involvement process supports and enhances ongoing study and project deliverables;
- maximise the benefits to project design, operation, management and EIS documentation as a result of consultation inputs;
- manage the community's expectations of which project aspects are negotiable and which are project givens, and what is necessary for the completion of the EIS and ongoing planning;
- provide a foundation for a long-term relationship between SunWater, its stakeholders and the community that is based on trust and mutual respect ;
- provide a basis for the majority view of the community to be reflected in project planning and the EIS;
- reinforce the positive reputation of SunWater within the region; and
- minimise the association of the Nathan Dam and Pipelines Project from previous similar projects that did not proceed as well as other influences of potential detractors on the EIS process.

The EIS consultation commenced in April 2008, prior to the release of the Draft ToR for the EIS and continued through the period of the development of the EIS. The process during the public display of the EIS will be similar to that of the Draft ToR, with SunWater providing a program of community consultation strategies and ensuring the EIS is available through a range of forums, including websites, CDs and hardcopy.

A detailed consultation report is provided in Appendix 1C. A brief summary of the report is provided below.

1.10.1. Stakeholder identification

Stakeholders were identified based on their proximity to the Project site and statutory identification (as per the EP Act) as either an Affected Person or an Interested Person. Stakeholders with an interest in regional issues such as local businesses, natural resource management groups, conservation groups, industry groups were also engaged as well as state and local government representatives.

1.10.2. Scope of community consultation

The consultation included all the stakeholders identified above, communities located in and around the Project area, elected federal, state and local government representatives and government officers, industry sectors, special interest groups and organisations in close proximity to the Project area, road users, traditional owners, public utilities and media.

A Community Liaison Group (CLG) was formed for the Project, comprising representatives of stakeholder groups invited by SunWater.

CLG membership included environmental, community, business, customer and local government representatives and aimed to:

- provide a transparent, representative and accessible forum to address issues of community interest related to the Project;
- capture community feedback and suggestions to assist with the EIS;
- increase understanding about the Project within the community; and
- enable a forum for the identification and discussion of issues associated with the EIS and allows for input by the CLG to the EIS technical studies.

1.10.3. Consultation phases and activities

Specific communication activities undertaken to facilitate effective two-way communication included three community Information Days at Taroom, Theodore, and Miles, and ongoing engagement with key community groups and government representatives. In addition, three Project newsletters have been distributed to more than 407 stakeholders through letterbox delivery as well as insertion in local newspapers and display at key community touch-points.

SunWater maintained a project office in the main street for Taroom from June 2008 until April 2009. The office was used to display project information and was attended by a project team member every Wednesday and Friday for a period of four hours to provide members of the local community with an opportunity to visit the local office and discuss any project related questions they may have.

Stakeholders were also encouraged to make suggestions at any time during the EIS process via a toll-free 1800 number, the Project email address, fax and mailing address.

The Community and Stakeholder Engagement Plan utilised a range of engagement techniques for the different stakeholder groups, including:

- Project information hotline, email and reply paid address;
- SunWater web page updates;
- Project newsletters;
- Public displays;
- Information days;
- Letters;
- Posters;
- Media releases;
- Advertisements;
- Community Liaison Group; and
- Stakeholder meetings.

Table 1-6 shows the phases of the Community and Stakeholder Engagement Plan and associated activities. The plan extends beyond the current phase of the Project through to Project operation.

Table 1-6 Community and stakeholder engagement - Consultation phases and activities

Description	Activities to be implemented
Stage One: Introducing the EIS process (April 2008 – September 2008)	
This stage is designed to: ■ introduce the project and the EIS process to key stakeholders and the broader community; ■ connect with existing community contact points and renew existing relationships with key stakeholders; ■ establish relationships with new stakeholders, including affected landowners; and ■ maintain project awareness. This stage also details activities that should be maintained for the duration of the study (such as the web page and newsletter updates).	■ establish project branding; ■ set up of EIS feedback mechanisms (i.e. project office, 1800 hotline, project e-mail and reply paid mail addresses); ■ set up of database to record consultation activities and stakeholder feedback; ■ preparation and launch of project web page, and web page updates as required; ■ preparation of supporting internal communication messaging/materials (i.e. Q&As, holding statements), as well as project fact sheets; ■ preparation and distribution of media releases as required; ■ preparation and distribution of initial project newsletter #1; ■ agency and elected representative briefings; ■ letters and phone calls to affected landowners (directly and indirectly impacted, as appropriate); and ■ letters to all other stakeholders (including environmental and other special interest groups, industry groups, potential customers etc)
Stage Two: Two-way information exchange with stakeholders and the community (October 2008 – October 2010) *Note: Project was on hold for approximately 12 months during 2009*	
This stage is designed to: ■ encourage ongoing involvement by stakeholder groups and the broader community; ■ gather feedback from all stakeholders to identify emerging issues and concerns and information about social, economic and natural environments; ■ identify potential issues to be considered through technical studies; and ■ undertake public consultation on the draft ToR to support the preparation of the draft EIS.	■ research and preparation of static and staffed displays and materials required; ■ preparation and distribution of project newsletter #2 (with feedback form/questionnaire); ■ additional agency and elected representative briefings, as required; ■ project briefings with other key stakeholders, as required/requested; ■ letters to stakeholders, interested parties, agencies and landowners (indirectly and directly affected) ■ affected landholder meetings; ■ meetings and briefings with other key stakeholders, as requested/required; ■ formal release of the draft ToR; ■ static displays, staffed displays, and/or information session; ■ web page updates; ■ preparation and distribution of media releases as required; ■ advertisements promoting static and staffed displays; and ■ preparation of interim consultation report, for inclusion in the drat EIS Report

Description	Activities to be implemented
Stage Three: Display of the EIS (April 2012 – June 2012)	
This stage of the consultation and communication process will: ■ raise awareness of the release of the EIS for public consultation; ■ identify community and stakeholder issues in relation to the EIS; and ■ assist the project team in decision-making on the final outcomes of the EIS.	■ formal release of the EIS Report; ■ letters to stakeholders, interested parties, landowners and agencies; ■ web page updates; ■ advertisements; ■ media releases; ■ preparation and distribution of project newsletter #3; ■ static and staffed displays; ■ additional briefings with agencies and elected representatives, as required; and ■ preparation of a consultation report to form part of the Supplement to the EIS
Ongoing: Project management (April 2008 – present)	
This stage of the consultation and communication process will: ■ act as an information exchange within the project team; ■ manage information; ■ track and manage emerging issues; and ■ result in a complete database and consultation report.	■ hotline and email monitoring; ■ media monitoring; ■ consultation reporting; ■ interim issues reporting from consultation database; and ■ issues management as required

Details regarding likely consultation activities during the construction and operation phases of the Project are included in Appendix 1C Consultation Report.

1.10.4. Summary of outcomes from the consultation process

The most commonly raised issue categories and related issues identified throughout the consultation process are outlined below:

1) Land Access: Land Use

The majority of communication related to SunWater accessing land owners properties. However, SunWater has also attempted to consult with every landowner impacted by the dam water storage area and pipeline route to determine the main issues of concern. For landowners in the water storage area the most common sentiment toward the Project was an overwhelming desire for a final decision regarding the future of the dam. The uncertainty surrounding the development of the dam has been a source of concern to many landholders because it was first proposed in 1922. In some instances landholders have deferred major improvements to their properties for fear that the land would be required for the project. Landowners along the pipeline route are generally more concerned about the terms under which their land is accessed as many of these landowners are already being impacted by investigations for coal seam gas projects. Issues regarding land use are addressed in Chapter 7.

2) EIS: Environmental Management Plans

The issue of environmental management plans was raised a number of times in the community consultation process. This included objections to the dam, a request from the local Wildlife Society of Queensland branch to be more involved in the process, as well as the Boggomoss Snail, rehabilitation of affected areas and business opportunities arising from the dam. The Draft EMP is presented in Chapter 29.

3) EIS: Location

Communication regarding the location of the dam and the affected areas was mixed and largely polarised. Some of the issues covered included strong opposition to the flooding of good grazing land, praise for the pipeline location and the belief that the soil would not support the dam wall. Location issues are addressed in Chapter 2 while soil and Good Quality Agricultural Land issues are addressed in Chapter 6.

4) EIS: Water Resources

Concerns were raised by various parties within the Dawson-Callide sub-catchment regarding the availability and distribution of water allocations that will be generated through the Project. In particular the extraction of over half of the dam's yield for transportation to users outside of the basin was the cause of concern for some parties including the Banana Shire Council (although the Council has indicated their support for the Project on multiple occasions at the CLG meetings and via the media). The demands for water from the Project are addressed in Section 1.3 and in Chapter 14.

1.11. Project approvals

The following sections describe the legislation relevant to the approvals required for the Project, the applicable planning processes and standards, and accredited process for controlled actions under Commonwealth legislation.

A summary of the permits that are likely to be required for this Project is provided in Table 1 Appendix 1D. It should be noted that SunWater is not seeking approval for the construction camps as part of the EIS, the final location and details will be determined as part of the Social Impact Management Plan and the relevant stakeholders. Table 2 Appendix 1D provides an outline of potential approvals associated with the construction camps

1.11.1. Relevant legislation

1.11.1.1. Commonwealth legislation

- Aboriginal and Torres Strait Islander Heritage Protection Act

Section 4 of the Commonwealth *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* notes the purposes of the Act are the preservation and protection from injury or desecration areas and objects in Australia and in Australian waters that are of particular significance to Aboriginals in accordance with Aboriginal tradition. Under the Act declarations may be made about significant areas or objects. Under the Act it is an offence to contravene a declaration. The Act also provides guidelines for dealing with aboriginal remains, where they are discovered, in accordance with aboriginal traditions. For this Project no declarations have been made.

- Environment Protection and Biodiversity Conservation Act

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) establishes a process for environmental assessment and approval of proposed actions administered by the Australian Government Department of Sustainability, Environment, Water, Population and Communities (SEWPaC) formerly Department of Environment, Water , Heritage and the Arts (DEWHA).

The EPBC Act states that both the long-term and short-term impacts must be considered throughout the Project life. The Project has been assessed in this EIS as being consistent with the principles of ecologically sustainable development (section 3A of the EPBC Act) as consideration has been given to the following principals as documented in the Act:

a) decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations;

b) where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation (the Precautionary Principle);

c) the principle of inter-generational equity — that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations;

d) conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making; and

e) promotion of improved valuation, pricing and incentive mechanisms.

As outlined above, the Minister is required to make a decision under Part 9 of the EPBC Act as to whether to approve the Project. The EPBC Act identifies seven matters of National Environmental Significance and requires assessment and approval for any action that has, or is likely to have, a significant impact on any of those matters. Such an action is deemed a 'controlled action' under the legislation. It is a statutory offence to undertake a 'controlled action' without the prior approval of the Minister responsible for this legislation (i.e. the Minister for Sustainability, Environment, Water, Population and Communities).

On 30 July 2008, the Minister declared the Project a controlled action under section 75 and 87 of the EPBC Act. The controlling provisions for this Project are:

- sections 12 and 15A (World Heritage properties);
- sections 15B and 15C (National Heritage places);
- sections 16 and 17B (Wetlands of International importance);
- sections 18 and 18A (Listed threatened species and communities);
- sections 20 and 20A (Listed migratory species); and
- Sections 23 and 24A (Marine Environment).

As noted above, assessment under the EPBC Act may be undertaken via this EIS process in accordance with the bilateral agreement between the Commonwealth and Queensland governments.

Pursuant to the bilateral agreement and the EPBC Act, the Coordinator-General's report on the EIS is to include enough information about the action and its relevant impacts to allow the Australian Government Minister to make an informed decision whether or not to approve the action under Part 9 of the EPBC Act.

The decision period under the EPBC Act commences following receipt of the Coordinator-General's assessment report (section 130 of the EPBC Act).

In making a final determination on the Project, the Minister will primarily rely on the Coordinator-General's report, though may also request additional information from persons including SunWater (section 132). Further, the Minister may invite public comment about the proposed decision (section 131A). The Minister may also consider comments provided by any other Minister with administrative responsibilities relating to the Project (section 131).

Section 28 provides a stand-alone report that exclusively and fully addresses the issues relevant to the controlling provisions. Section 1.9 describes in more detail how the Project relates to the Act, the process followed by the Project under the Act and the implications of the Commonwealth Minister's determination that the Project is a controlled action.

- Native Title Act

The function of the Commonwealth *Native Title Act 1993* (NT Act) includes establishing a framework through which native title can be recognised, in addition to providing protection for native title rights. Proposed activities or developments that may affect native title are classed as 'future acts' under the NT Act. The NT Act provides for the determination of native title claims, the treatment of future acts, and the requirement for consultation and/or notification of relevant native title claimants where future acts are involved. Under the NT Act, any past grants of freehold or certain leasehold interests are recognised as having extinguished native title if they occurred prior to certain dates. The NT Act operates in conjunction with associated state legislation, such as the *Native Title (Queensland) Act 1993*.

The relevance of the NT Act as applied to this Project is discussed in more detail in Section 22.

1.11.1.2. Queensland legislation

- Aboriginal Cultural Heritage Act

The *Aboriginal Cultural Heritage Act 2003* aims to provide recognition and protection of Aboriginal cultural heritage (section 4). Underpinning the Act is a 'cultural heritage duty of care': section 23(1) of the Act states that 'a person who carries out an activity must take all reasonable and practicable measures to ensure the activity does not harm Aboriginal cultural heritage'. The 'cultural heritage duty of care' is taken to be complied with if works are being carried out under an approved cultural heritage management plan (CHMP) that applies to the Aboriginal cultural heritage (section 23(3)).

The Act establishes a framework on how to prepare CHMPs.

A search of the cultural heritage register has been undertaken as part of the EIS process. A cultural heritage survey of the proposed water storage area has been undertaken and CHMPs have been entered into with the Aboriginal Parties for the water storage area, details of which are provided in Section 22. SunWater has met with the Aboriginal Parties for the pipeline area details of which are provided in Section 22.

- Dangerous Goods Safety Management Act

Under the *Dangerous Goods Safety Management Act 2001* and relevant regulations, the following permits and approvals are expected to be required for the storage of flammable and combustible liquids for the Project:

- Flammable and combustible liquids licence (FCL licence) from Banana Shire Council and or Western Downs Regional Council, under Part 4 of the *Dangerous Goods Safety Management Regulation 2001;* and
- notification of a 'large dangerous goods location' (large DGL) if there will be exceedance of the 'manifest quantities' listed in Schedule 1 of the *Dangerous Goods Safety Management Regulation 2001*.

An additional permit may be required under separate legislation in relation to an 'environmentally relevant activity' for chemical storage. This is discussed under the *Environmental Protection Act 1994*.

The main liquid will be diesel fuel required for the plant and equipment. The relevant permits will be obtained prior to the construction phase of the Project.

Electricity Act

The *Electricity Act 1994* and associated regulation specifies requirements for construction and operation of a powerline. The Electricity Act also identifies the types of activities associated with construction and operation of a powerline and easement that would normally require approvals from other departments, but which are exempt under the Electricity Act.

The only provision of this Act which relates to the Project is that of Section 99. Section 99 specifies that a person must give notice to the electricity authority of proposed works that will interfere with a powerline. Although this cannot be confirmed until the detailed design phase, this may be required when undertaking service relocations for the Project.

Environmental Protection Act

The Queensland *Environmental Protection Act 1994* (EP Act) provides the key legislative framework for environmental management and protection in Queensland. The object of the EP Act (section 3 of the EP Act) is to 'protect Queensland's environment while allowing for development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends'.

The EP Act establishes a general environmental duty on every person to not carry out an activity that causes or is likely to cause environmental harm unless the person takes all reasonable and practicable measures to prevent or minimise the harm (section 319 of the EP Act).

The EP Act regulates contaminated land, environmental relevant activities (ERAs), registration certificates for environmental relevant activities, site management plans and offences relating to environmental harm. If SunWater becomes aware that any land owned or occupied by SunWater is being used for a notifiable activity or is or has been contaminated by a hazardous contaminant, SunWater must notify the relevant authority under section 371 of the EP Act.

The EP Act and regulation also regulates ERAs that have been identified as activities that may result in the release of contaminants in the environment. Pursuant to schedule 8 of the IP Act, a development permit must be obtained for a material change of use that is an ERA that is assessable pursuant to Schedule 8, Table 2, item 1 of the IP Act. All other ERAs must not be carried out without the relevant environmental authority or registration certificate. Under the EP Act, environmentally relevant activities are prescribed by the *Environmental Protection Regulation 2008* (the EP Reg). For the Project, the following ERAs may be carried out:

- ERA 8 — Chemical Storage;

- ERA 14 — Electricity Generation;
- ERA 16 — Extractive and Screening Activities;
- ERA 17 — Abrasive Blasting;
- ERA 38 — Surface Coating;
- ERA 43 — Concrete Batching;
- ERA 47 — Timber Milling and Woodchipping;
- ERA 50 — Bulk Material Handling;
- ERA 63 — Sewage Treatment; and
- ERA 64 — Water Treatment.

Under section 427 of the EP Act only a registered operator holding a registration certificate may carry out an ERA. SunWater will need to obtain registration certificates for all ERAs that it carries out for the Project.

Environmental Protection Policies

The EP Act also establishes Environmental Protection Policies (EPPs), which set standards on environmental issues.

The Environmental Protection Policies are subordinate legislation that support the EP Act. The purpose of the policies is to protect and enhance environmental values, namely, the wellbeing of the environment, community and individuals.

Environmental protection policies prepared to date include:

- Environmental Protection (Water) Policy (2009);
- Environmental Protection (Noise) Policy (2008);
- Environmental Protection (Air) Policy (2008); and
- Environmental Protection (Waste Management) Policy (2000).

The Environmental Protection Policies are relevant to the construction and operation of the Project. For example, under section 442 of the EP Act it is an offence to release into the environment a contaminant prescribed by a regulation. In addition, environmental protection policies are used for the assessment of environmental management plans and as such, the environmental protection policies will be relevant for the Project where environmental management plans are required.

Fisheries Act

The Queensland *Fisheries Act 1994* established a framework for the management of fisheries resources, fish habitat and aquaculture. The main purpose of the Fisheries Act is to provide for the 'use, conservation and enhancement' of fisheries resources and fish habitats through the application of the principles of ecologically sustainable development.

Under section 122 and 123 of the Act a person must not unlawfully perform works in a declared fish habitat area or remove or destroy marine plants. There are no declared fish habitats in the Project area and marine plants are very unlikely to be impacted.

Forestry Act

The *Forestry Act 1959* provides for forest reservations; the management, silvicultural treatment and protection of State forests; and the sale and disposal of forest products and quarry material, the property of the Crown on State forests, timber reserves and on other lands. All crown land, such as road reserves and stock routes, that contains 'profitable timber' are also subject to the Forestry Act.

The Project traverses freehold land (which includes titles surrendered to the State of Queensland or Crown) and state land which may contain profitable timber. Section 70 of the Act indicates the chief executive may grant permits to such persons (subject to conditions) authorising the destruction of trees on roads (save State-controlled roads under the *Transport Infrastructure Act 1994*). SunWater will be required to seek guidance from the relevant authority in relation to determining whether timbered areas within the Project area are considered profitable, and where necessary obtain a permit under Section 70 of the Act.

Land Act

The *Land Act 1994* provides a framework for the allocation of state land as either leasehold, freehold or other tenure. Permits may be acquired under this Act from the Department of Environment and Resource Management (DERM) for the occupation of a reserve, road or unallocated state land.

The *Land Act 1994* regulates the opening and closing of state and local roads and land dealings relating to changes in land tenure.

Roads are managed on a day to day basis by the relevant local government authority, or in the case of state-controlled roads, by the Department of Transport and Main Roads (TMR). DERM, through the provision of the *Land Act 1994*, is responsible for the land in roads. However, in practice, where project infrastructure is located in a state-controlled road, a permit authorising ancillary works and encroachments under the *Transport Infrastructure Act 1994* must be obtained from TMR, rather than a permit to occupy from DERM. This is discussed further below.

There is potential for the requirement of a number of permits and approvals under the *Land Act 1994* including the following:

- road closure applications and or road opening;
- permits to occupy unallocated state land, reserves or roads; and
- open, closing or surrendering a reserve.

Land Protection (Pest and Stock Route Management) Act

The purpose of the *Land Protection (Pest and Stock Route Management) Act 2002* (section 3) is to provide for pest management for land and stock route network management. The *Land Protection (Pest and Stock Route Management) Act 2002* (section 25) requires every local government in Queensland to develop a pest management plan for their area.

Pest management plans are intended to provide guidance to land owners and stakeholders (including SunWater) on appropriate pest control measures within the local government area. In accordance with section 77 of the *Land Protection (Pest and Stock Route Management) Act*, SunWater would be required to control or eradicate any 'declared' plants and animals identified during the construction of the Project on land that is owned or controlled by SunWater. During project infrastructure construction activities, an environmental management plan would be required and would include management techniques to adequately address weed eradication and prevention of weed transportation. During construction SunWater will have an obligation under the Act to ensure it limits the transportation of declared pests. The weed management plan for the Project will be developed as part that for the DVWSS.

Under the *Land Protection (Pest and Stock Route Management) Act 2002*, stock route maintenance must also be considered. Chapter 3, part 3 of the *Land Protection (Pest and Stock Route Management) Act 2002* outlines the need to develop a state stock route management strategy. The finalised Queensland Stock Route Network Management Strategy was approved in 2007 and will be implemented by the nominated responsible agencies.

Schedule 4 of the *Land Protection (Pest and Stock Route Management) Regulation (2003)* identifies the Banana Shire Council and Western Downs Regional Council as council's that are required to prepare stock route network management plan.

Nature Conservation Act

The *Nature Conservation Act 1992* (the NC Act) establishes a framework for the identification, gazettal and management of protected areas (such as national parks) and the protection of native flora and fauna (protected wildlife). Under the *Nature Conservation (Wildlife) Regulation 2006* (NC Regulation), species are categorised as either extinct in the wild, endangered, vulnerable, near threatened, least concern, international and prohibited. Pursuant to Section 276 of the *Nature Conservation (Wildlife) Regulation 2006*, a wildlife clearing permit is required for dealing with listed species.

In the event SunWater needs to clear any protected plants, outside a protected area, SunWater will obtain a clearing permit under the Act.

Queensland Heritage Act

The purpose of the *Queensland Heritage Act 1992* (Section 2) is to provide for the conservation of cultural heritage in Queensland for the benefit of the community and future generations. It seeks to achieve this by:

- establishing the Queensland Heritage Council;
- keeping a register of Queensland heritage-listed places;
- keeping the local heritage registers;
- regulating development affecting the cultural heritage significance of registered places (in conjunction with other legislation);
- providing for heritage agreements to encourage appropriate management of registered places; and
- providing enforcement powers to help protect Queensland's cultural heritage.

The Queensland Heritage Council advises the Minister on matters relating to Queensland's historical cultural heritage; administers the Heritage Register; encourages public interest and understanding of Queensland's cultural heritage; assists the proper management of places of cultural heritage significance; keeps proper records, and encourages others to keep proper records, of places and objects of cultural significance; and co-operates and collaborates with federal, state and local authorities in conserving places and objects of cultural heritage significance (Australian Heritage Council, 2008).

Under the *Queensland Heritage Act 1992*, it is an offence to knowingly destroy or otherwise interfere with such sites or items. These offences are stipulated in the Act and include:

- if a person does not notify the chief executive administering the Act about discovering an archaeological artefact (Section 89); and
- if a person interferes with an archaeological artefact knowing that the chief executive has issued a notice regarding the discovery (Section 90).

The Act also sets out the assessment requirements for any development applications for development in or on a heritage place.

A desktop assessment has been undertaken to identify cultural heritage issues within the Project area. The findings from this study, together with recommendations regarding the issues identified are detailed in Section 23 of this EIS.

State Development and Public Works Organisation Act

As outlined in Section 1.9, the *State Development and Public Works Organisation Act 1971* (SDPWO Act) establishes an environmental assessment process for projects declared to be 'significant projects'.

The SDPWO Act deals with the involvement of the Coordinator-General in the EIS process and also in Projects to be undertaken by the Coordinator-General. For example, local bodies or other persons can be directed to undertake works and the Coordinator-General can delegate various of its powers under the SDPWO Act to a local body. Where such a direction is made or delegation of powers is made, this provides certain exemptions for assessment against a local government's planning scheme under the IP Act. SunWater is a 'local body' under the SDPWO Act. The Coordinator-General has compulsory acquisition powers under the SDPWO Act that can be exercised for works to be undertaken by a local body.

The extent to which recourse may desirably be made to the SDPWO Act and to the powers of the CG to assist the Project will be considered along with other approval processes.

On 13 December 2007, under the SDPWO Act, the 'Establishment of Program of Works Statewide Water Grid Regional Water Infrastructure Projects Notification (No 3) 2007' (the Program of Works) was approved by the Governor in Council. Under the Program of Works, SunWater has been nominated as the proponent for the feasibility investigations for the Project, including the preparation of this EIS. In June 2011 an Amended Program of Works Statewide Water Grid Regional Infrastructure Projects Notification (No.1) was issued approving the completion of engineering, environmental, cultural heritage and native title assessments currently underway. The completion of this work will provide certainty that the projects can proceed when required.

Sustainable Planning Act

The *Sustainable Planning Act 2009* (SP Act) is the overarching legislation which regulates development in Queensland. The SP Act is accompanied by the *Sustainable Planning Regulation 2009* (SP Regulation). The SP Act and SP Regulation provide for the assessment of certain development against local government planning schemes and policies and state government legislation.

The SP Act provides the framework for Queensland's planning and development assessment system. Under the SP Act any 'assessable development' requires a development permit. Development is defined under the SP Act to mean 'any of the following:

1) carrying out building work;
2) carrying out plumbing or drainage work;
3) carrying out operational work;
4) reconfiguring a lot; and
5) making a material change of use of premises.

Development is made assessable by a council's planning scheme, state planning regulatory provisions, a temporary local planning instrument or a master plan for a declared master plan area. There are no declared master plan areas, temporary local planning instruments or state planning regulatory provisions applicable to the Project area.

A summary of the permits that are likely to be required for this Project is provided in Appendix 1D.

The SP Act also provides for the development of regional plans by the State to provide region-wide guidance for planning schemes and development.

The Central Queensland Regional Growth Management Framework (RGMF) is a non-statutory document that was released in 2002 and covers the section of the Project within the Banana Shire Council area. It also covers Central Highlands Regional Council area, Gladstone Regional Council area (excluding the former Miriam Vale Shire Council local government area), Rockhampton Regional Council area and Woorabinda Aboriginal Community area. At the time of writing this EIS, there are currently no proposals for a new or revised plan for the Central Queensland region.

As outlined above, where a regulation is made under the SDPWO Act directing SunWater to undertake certain works, or the Coordinator-General is directed to undertake works and delegates the undertaking of those works to SunWater, such work is exempt from assessment against a local government's planning scheme (Schedule 4, table 5, item 6 of the SP Regulation). The SP Act also allows for Community Infrastructure Designations for particular projects and land that meet the requirements of the Act. If a Community Infrastructure Designation is made, Schedule 4, Table 5 Item X of the SP Act exempts from assessment against a local council's planning scheme all aspects of development for Community Infrastructure prescribed under a regulation. However, if development is exempt from assessment against a local government's planning scheme it may still be assessable against Schedule 3 of the SP Act.

SunWater will consider whether a Community Infrastructure Designation under the SP Act or regulations under the SDPWO Act are necessary for the completion of the Project.

Transport Infrastructure Act

The overall objective of the *Transport Infrastructure Act 1994* (the TI Act) (section 2) is 'to provide a regime that allows for and encourages effective integrated planning and efficient management' of Queensland's transport infrastructure system. The TI Act provides a strategic overview for Government to provide and operate all transport infrastructure – including national and state significant roads, rail, ports, air, public marine transport and busway transport infrastructure.

The TI Act is administered by the Department of Transport and Main Roads (TMR) and various port authorities. Under the TI Act, permits or approvals are required to work in, or interfere with a state-controlled road or railway and for ancillary works and encroachments in a state controlled road corridor. The road and rail infrastructure affected by the Project is discussed in Section 21. The relevant permits will be sought following detailed design.

Vegetation Management Act

The *Vegetation Management Act 1999* (VMA) regulates the clearing of 'remnant' and 'regulated regrowth' vegetation, except for exemptions under the *Nature Conservation Act 1992*, the *Land Act 1994*, and the *Forestry Act 1959*.

Clearing of any relevant remnant or regulated regrowth vegetation will constitute operational works under Schedule 3 of the SP Regulations which will require a development approval under IDAS as described in Appendix 1D.

Prior to obtaining this development approval there is a requirement under section 22A of the VMA that the chief executive of the DERM is satisfied that the proposed clearing is for a relevant purpose to enable an application for clearing to be assessed. In this case, the relevant purpose is that the proposed clearing is for a Project declared to be a significant Project under the SDPWO Act.

Clearing applications for this Project will be assessed against Part S of the Regional Vegetation Management Code for the Brigalow Belt bioregion which sets out the requirements for clearing for significant projects.

Water Act

The *Water Act 2000* vests all rights to the use, flow and control of water in Queensland in the State. The Water Act provides for a:

- sustainable management framework for the planning, allocation and use of water resources;
- regulatory framework for service providers covering asset management, customer standards, and dam safety;
- governance regime for statutory authorities that provide water services; and
- regulation of works and other activities undertaken in watercourses.

A number of such works or activities undertaken to carry out the Project are classified as operational works under the SP Act and require a development approval using IDAS under Schedule 3 of the SP Regulation. These include:

- works for taking or interfering with water from a watercourse;
- works for taking or interfering with overland flow water or sub-artesian water where required under the relevant Fitzroy Basin WRP; and

- construction of a referable dam.

These development applications are assessed against the Water Act and any relevant codes mentioned in the *Water Regulation 2002* (s.61A). It is not anticipated that any of these codes will apply to the specific development applications required for the Project.

A number of other licenses or permits under the Water Act will be required, e.g.

- permit to take water from a watercourse for a specified purpose where the activity has a foreseeable end date under section 237;
- Riverine Protection Permit to destroy vegetation, excavate or place fill in a watercourse under Section 266;
- an allocation notice sourcing quarry material from a watercourse under section 280; and
- a resource operations licence in relation to the operation of the water storage infrastructure under section 108.

In relation to the operation of the water storage a resource operations licence, under section 108 of the Water Act will be required. Provision is made under the Fitzroy Basin WRP for a direction to be given regarding an application for a resources operations license and it is expected that such a direction will be given to SunWater. The resources operations licences will contain conditions to ensure that the performance requirements, including those relating to environmental flows, which are stated in the Fitzroy Basin WRP, are met.

Water Resource (Fitzroy Basin) Plan

The Fitzroy WRP was under review at the time of drafting the EIS and therefore *Water Resource Plan (Fitzroy Basin) Plan 1999* (WRP) has been used in the assessment of potential impacts and associated compliance. The revised WRP was approved on 8 December 2011. The modelling undertaken for the EIS will be revised using the model developed for the new WRP and compliance with the *Water Resource Plan (Fitzroy Basin) Plan 2011* (WRP) will be assessed prior to project approval.

The *Water Resource Plan (Fitzroy Basin) Plan 1999* (WRP) provides a balance between environmental needs and consumptive uses. The Plan sets the strategic framework for the allocation and sustainable management of water within the Fitzroy Basin. A WRP is valid for a period of 10 years, after which time its objectives and outcomes are reviewed by DERM.

The WRP (1999) established two key sets of objectives:

- Environmental Flow Objectives (EFOs); and
- Water Allocation Security Objectives (WASOs)

The EFOs set out a series of flow objectives which must be met at key locations in the Basin. The EFOs cover a range of flow conditions including Base Flow, a First Post-Winter Flow Event and Medium to High Flow Events. The WASOs assess the performance of supplemented and unsupplemented water products. EFOs are discussed further in Chpater 14.

Fitzroy Basin Resource Operations Plan

The ROP is a plan prepared under the provision of the Water Act by the chief executive to implement a WRP for certain water in all or part of the plan area. The Fitzroy Basin Resource Operations Plan (April 2006) implements the Water Resource (Fitzroy Basin) Plan 1999. While the WRP sets out the strategic goals for water resource management in the plan area, the ROP defines the rules that govern the allocation and management of water in order to achieve the WRP objectives.

As part of the ROP, areas of the Basin are identified which are able to provide future water allocations, over and above existing surface water entitlements. This 'unallocated' water reflects a potential future water source which can be provided while still meeting the WRP objectives. The ROP also identifies 190,000 ML of medium priority water from the Dawson River (as provided in the WRP), specifically associated with Nathan Dam.

Water Supply (Safety and Reliability) Act

On 1 July 2008, the DERM through the Office of the Water Supply Regulator, commenced administration of the *Water Supply (Safety and Reliability) Act 2008*.

The Act aims to strengthen the safety and reliability of Queensland's water supplies and protect public health by:

- establishing new regulatory provisions for recycled water and drinking water; and
- incorporating, largely without change, Chapter 3 'Infrastructure and Service' of the Water Act.

Certification for the dam will be required under this Act including failure impact assessment under Section 343 for dams that are more than 8 m in height and meet certain storage capacity criteria (this will apply to the Project).

The Office of the Water Supply Regulator will ensure that service providers meet the new regulatory provisions, and will continue to manage dam safety, water supply assets, and water and sewerage service providers.

Central Queensland Regional Growth Management Framework

The Central Queensland Regional Growth Management Framework (RGMF) is a non-statutory document that was released in 2002 and covers the section of the Project within the Banana Shire Council area. It also covers Central Highlands Regional Council area, Gladstone Regional Council area (excluding the former Miriam Vale Shire Council local government area), Rockhampton Regional Council area and Woorabinda Aboriginal Community area. At the time of writing this EIS, there are currently no proposals for a new or revised plan for the Central Queensland region.

The RGMF was prepared as an advisory document to establish a strategic framework that provides an integrated approach to managing the future growth and development of the Central Queensland region to the year 2020. The primary goals of the RGMF are to:

- provide an integrated whole of region approach to planning and governance;
- stem the leakage of human and financial capital from this region; and
- position the region in order to maximise the competitive advantage and sustainability of its future.

The regional policies of the RGMF are non-statutory, however, they provide a planning framework through which intended outcomes of the Central Queensland region can be achieved. The following regional policies are of particular relevance to the Project:

- Resource Use, Conservation and Management;
- Economic Development;
- Infrastructure; and
- Social and Cultural Development.

Each of the regional policies of the RGMF is measured through various outcomes, Section 7 identifies and provides comments on the relevant regional outcomes in regard to the Project.

The Project seeks to deliver water infrastructure to meet the region's existing and future water supply needs for industries, communities and agriculture and to do so in an acceptable manner via the EIS process. It is for these reasons that the Project is viewed as being consistent with the goals and outcomes sought in the RGMF.

1.11.2. Planning process and standards

This section summarises national, state, regional and local planning processes and policies that are relevant to the Project. The guidelines and standards contained within these policies, and Project's consistency with the policies, are detailed in the relevant technical sections of this EIS.

1.11.2.1. National policies and standards

- National Water Initiative

The National Water Initiative (NWI) is a blueprint for water reform in Australia. The overall objective of the NWI is to achieve a nationally compatible market, regulatory and planning based system of managing surface and groundwater resources for rural and urban use that optimises economic, social and environmental outcomes (National Water Commission, 2008).

All state governments are signatories to the NWI and have made commitments to:

- prepare water plans with provision for the environment;
- deal with over-allocated or stressed water systems;
- introduce registers of water rights and standards for water accounting;
- expand the trade in water;
- improve pricing for water storage and delivery; and
- meet and manage urban water demands (National Water Commission, 2008).

The NWI includes objectives, outcomes and agreed actions to be undertaken by governments across eight inter-related elements of water management which seek to achieve:

- clear and secure water access entitlements;

- transparent, statutory-based water planning;
- improved environmental management practices;
- the re-establishment of over-allocated or overused systems to environmentally sustainable levels of extraction;
- removal of barriers to trade in water to facilitate a broader water market with improved open trading;
- clarity around the assignment of risk arising from future changes in the availability of water for the consumptive pool;
- more flexible water accounting to meet the information needs of different water systems;
- policy settings to facilitate water use efficiency and innovation in urban and rural areas; and
- recognition of the connectivity between surface and groundwater resources and connected systems managed as a single resource (National Water Commission, 2008).

The *Water Resource (Fitzroy Basin) Plan* is the culmination of water resource planning for the Fitzroy Basin. The plan addresses the requirements of the Council of Australian Governments Agreement and the NWI to finalise planning in areas where there is water scarcity and a need for additional infrastructure. In accordance with the NWI, any regulatory approvals for water use and works required for the Project must be consistent with the WRP.

National Water Quality Management Strategy

The National Water Quality Management Strategy (NWQMS) provides a national approach to improving water quality in Australia's waterways. Development has progressed since 1992, the Australian Government working in cooperation with state and territory governments.

The NWQMS is part of the Australian Government's $12.9 Billion investment in strategic programs, Water for the Future.

Participants in NWQMS are working to protect the nation's water resources by improving their quality, reducing pollutants and at the same time supporting the businesses, industry and communities that depend on water for their continued development.

The NWQMS has three major elements:

- Policies;
- Process; and
- Guidelines.

A management framework is available via the Water quality management framework. One application of the NWQMS is Water Quality Improvement Plans.

National Strategy on Conservation of Australia's Biological Diversity

The National Strategy for the Conservation of Australia's Biological Diversity (NSCABD) was developed in 1996. The strategy emphasises that the conservation of biological diversity is a foundation of ecologically sustainable development and is one of the three core objectives of the national strategy for ecologically sustainable development.

The strategy was partly issued following the ratification by Australia on 18 June 1993 of the Convention on Biological Diversity.

The strategy emphasises that the conservation of biological diversity is a foundation of ecologically sustainable development and is one of the three core objectives of the national strategy for ecologically sustainable development.

The strategy recognises that:

- biological resources provide food, many medicines and industrial products;
- biological diversity underpins human well-being through the provision of ecological services including those essential for the maintenance of soil fertility, clean fresh water and air; and
- there are also recreational opportunities and scope for inspiration and cultural identity.

The strategy considers biological diversity at three levels:

- genetic diversity;
- species diversity; and
- ecosystem diversity.

The goals and principles of the strategy are aligned to the core objectives of the National Strategy for Ecologically Sustainable Development, namely:

- enhance individual and community wellbeing and welfare by following a path of economic development that safeguards the welfare of future generations;
- provide for equity within and between generations; and
- protect biological diversity and maintain essential ecological processes and life support systems.

The strategy recognises that decision-making processes should effectively integrate both long and short-term economic, environmental, social and equity considerations.

The goal and principles of the strategy, at the Commonwealth Government level, have been reflected in the passing of the EPBC Act. The requirements of that Act represent the legislative implementation of this strategy. As outlined previously, the Project requires an approval under that legislation. The EIS process addresses all the legislative requirements relevant to the implementation of this strategy.

One of the objectives of this strategy is objective 2.5 relating to Water Resources. This states an objective of:

> *"manage water resources in accordance with biological diversity conservation objectives and to satisfy economic, social and community needs."*

This EIS addresses all these issues in the context of both the Commonwealth and State legislative provisions which implement this strategy.

National Strategy for Ecologically Sustainable Development

The *National Strategy for Ecologically Sustainable Development* was introduced by the Commonwealth Government in 1992 addressing a number of key issues that arose out of The United Nations Conference on Environment and Development (the Earth Summit) held in Rio de Janiero in June 1992.

Five key principles accepted in this national strategy were:

1) Integrating economic and environmental goals in policies and activities
2) Ensuring that environmental assets are properly valued
3) Providing for equity within and between generations
4) Dealing cautiously with risk and irreversibility
5) Recognising the global dimension.

In adopting these principles, the national strategy for each of the identified sectors developed a goal, a strategic approach and objectives which effectively implemented the national strategy. Chapter 18 of the national strategy addresses water resource management. This chapter recognises that the major challenge in relation to water resource management is:

> *"To develop and manage in an integrated way, the quality and quantity of surface and groundwater resources, and to develop mechanisms for water resource management which aim to maintain ecological systems while meeting economic, social and community needs."*

The Australian National Assessment Report for the UN World Summit on Sustainable Development (Johannesburg 2002) noted that some of the specific recommendations of the strategy for the various sectors of the Australian community were no longer relevant or the objectives of the recommendation had been achieved by other initiatives. The initiatives specifically mentioned included the development and implementation of the EPBC Act 1999 (specifically section 3A), the National Heritage Trust, COAG Water Reform, the National Greenhouse Strategy, the National Oceans Policy and Regional Forest Agreements, to name a few.

The major State approvals relevant to the Project involve assessment under the SPA Act which also reflects the principles of ecological sustainability and which represents the major method adopted by the Queensland Government for implementing the strategy.

The Project planning and design complies with the relevant State and local policies, and consequently the principles of Ecologically Sustainable Development.

Climate Change and Greenhouse Gas Policy

The Federal government is committed to ensuring Australia meets its responsibilities in facing this global challenge. This commitment includes a comprehensive approach to:

- reduce emissions in Australia in the short and long term - Australia has set a target to reduce greenhouse gas emissions by 60% of 2000 levels by 2050;

- work with the international community to develop a global response that is effective and fair; and
- prepare for the inevitable impacts of climate change.

There are a number of Federal government laws and programs International protocols aimed at identifying and reducing Australia's greenhouse gas emissions. Those laws and programs most relevant to the Project include:

- the Energy Efficiency Opportunities Act 2006 (EEO Act) which requires large energy-users to identify, evaluate and publicly report cost effective energy savings opportunities;
- the National Greenhouse and Energy Reporting Act 2007 (NGER Act) which establishes a single, national system for reporting greenhouse gas emissions, abatement actions, and energy consumption and production by corporations from 1 July 2008; and
- the Clean Energy Act 2011 and subordinate legislation establishes a pricing mechanism for greenhouse gas emissions and provides assistance for emissions-intensive trade-exposed industries and the coal-fired electricity generation sector.
- greenhouse gas reduction measures such as:
  - the proposed Carbon Pollution Reduction Scheme (CPRS), which is being developed and expected to be phased in from 1 July 2012; and
  - Greenhouse Challenge Plus, which aims through partnerships between businesses and the government to accelerate the uptake of energy efficiency and reduce greenhouse gas emissions.
- The Queensland Government introduced the Smart Energy Savings Program (SESP) through the Clean Energy Act 2008. The program will require participating businesses to undertake an energy audit, develop an Energy Savings Plan and publish their actions for each relevant site.

Sunwater will be required to report emissions (as part of their collective emissions) generated during construction and operation phases of the Project.

1.11.2.2. Queensland policies and standards

- Central Queensland Regional Water Supply Strategy

The development of the CQRWSS was initiated by the Central Queensland Regional Water Supply Study and the response to the prolonged drought in Central Queensland. The Strategy addresses the key issues of:

- urban growth and industrial development;
- entitlements in some existing water supply systems in the region are at or approaching full usage;
- some existing water supply schemes are performing below water users' requirements; and
- meeting requirements of the urban, industrial, coal mining and agriculture sectors from 2005-2020 given predicted shortfalls.

The Strategy aims to outline the equitable and timely solutions to the urban, industrial/mining and agricultural water needs of the Central Queensland region.

The CQRWSS is discussed further in Section 1.3.1.3 and Section 14.

Central Queensland Strategy for Sustainability – 2004 and Beyond

The Central Queensland Strategy for Sustainability – 2004 and Beyond (CQSS2) is the regional plan for the management of the natural resources and environments of the river catchments of the Central Queensland region. The plan seeks to protect the region's assets through addressing key pressures. The CQSS2 has been developed by the people of Central Queensland through the Fitzroy Basin Association (FBA).

The goals of the strategy are to:

- improve the health and maintain the functioning of our natural systems, and conserve the region's biodiversity;
- develop a diversity of economically viable industries that support vibrant regional communities and use the region's natural resources in an ecologically sustainable way;
- integrate natural resource and environmental management, economic development and community development within the region;
- share decision-making for the allocation of natural resources and the management of the region's environment across all stakeholders; and
- ensure the costs and benefits of achieving sustainable systems are shared equitably across the regional community.

Central Queensland Regional Growth Management Framework

The Central Queensland Regional Growth Management Framework was prepared by the Central Queensland Regional Planning Advisory Committee in consultation with the communities of Central Queensland and endorsed by the Queensland Government. It formed part of the *CQ – A New Millennium* initiative.

The Framework is built around six guiding principles in the areas of Resource Use, Conservation and Management, Economic Development, Infrastructure, Social and Cultural Development, Education, Training and Research, and Planning and Governance. These guiding principles are drawn together by a set of integrated outcome statements, strategies and actions.

1.11.2.3. Local Government planning process and standards

The Project is located within the newly formed Banana Shire Council and Western Downs Regional Council areas.

Banana Shire Council comprises a merger of the former Banana Shire Council and part of the former Taroom Shire Council. The newly formed Western Downs Regional Council comprises a merger of the former local government areas of Chinchilla, Murilla, Taroom (part), Dalby, and Wambo. A discussion of the land uses and planning scheme controls for the local authority appears in Section 7.

A staged program for obtaining State and any local government approvals will be developed following conclusion of the EIS process. As outlined above, SunWater will consider whether it is necessary to seek a community infrastructure

designation under the SP Act or a regulation under the SDPWO Act. Much of this work will occur in 2012 with a view to having all relevant approvals in place to allow construction to start in 2013.

Relevant state approvals will be able to be obtained progressively as construction of the Project proceeds. Under IDAS, some development applications can be consolidated into one application.

1.11.3. Accredited process for controlled actions under Commonwealth legislation

As discussed above the Project is a controlled action under the EPBC Act and will be conducted under the Bilateral Agreement between the Queensland State Government and the Australian Government. While each chapter of the EIS that is relevant to a controlling provision will address that provision, for ease of assessment Chapter 28 contains a complete assessment of MNES produced in accordance with the ToR and the Significant Impact Guidelines (DEH 2006).