PART B – AEIS

25. ECONOMIC ENVIRONMENT AND MANAGEMENT OF IMPACTS

25.1. Definition of local suppliers

For purposes of clarification for one submitter, use of the term 'local' refers to the combined local study area of the Banana and Western Downs LGAs as defined by the 2011 ABS ASGS and Table 25-1 of the EIS. The term 'regional' refers to the combined ASGS SA4 boundaries of Darling Downs-Maranoa and Fitzroy.

25.2. Commercial viability of the Project

Several submitters questioned the commercial viability of the Project on the basis of the current economic decline in resource investment. A detailed response is provided in **Section 1.1** of Part B of the AEIS.

25.3. Impact on agricultural production

25.3.1. Resumption of land

A submitter suggested the cost of resumed land needs to take into account the future earning capacity of land resumed over the life of the property. Section 2.4.1.1 of the EIS described the methodology that will be employed for negotiating the resumption of land completed as part of the Project.

DNRM State Valuation Services will be responsible for the acquisition of land and will provide title to SunWater prior to the commencement of construction. As discussed in Section 2.4.1.1 of the EIS, should title be required for a property (or part thereof) impacted by the Project, negotiations with the landholder (via DNRM) will ensure that fair value is paid for interests in or access to land based on permanent or temporary loss of productivity and disruption to on-going farm operations. It is during these negotiations that a fair agreement will be reached with the landholder for compensating any potential earning capacity lost as a result of the Project.

A submitter stated that loss of agricultural productivity should be accounted for in deriving opportunity costs associated with inundating grazing and cropping land. In addressing this comment, the issue of whether the opportunity costs of inundating this land should be determined independently of any compensation arrangements has been considered.

Some economists consider that compensation payments may not adequately reflect the true value of land forgone for a range of reasons. These include information asymmetry, market fluctuations, and different perceptions of market value, as stated in Section 25.3.2.5 of the EIS. However, using compensation payments for property acquisitions (undertaken by DNRM State Valuation Services) can be a reasonable proxy for estimating these opportunity costs, given the difficulties of determining the 'true' opportunity cost.

Determining the 'true' opportunity cost of the land requires identification of the next best alternative for using that land. This requires forming a view on whether there are agricultural activities that can yield higher net benefits on the land in question relative to existing farming practices. Arguably, an exercise that seeks to quantify this is characterised by a fair degree of uncertainty and could be perceived to be speculative. In addition, DNRM State Valuation Services will seek to provide fair-value compensation to landholders. Given this, it is not unreasonable to assume that compensation payments reflect the opportunity costs of inundating the land.

25.3.2. Impact to Strategic Cropping Land

A submitter requested greater assessment with relation to the pipeline alignment and its potential impact on Strategic Cropping Land (SCL), specifically within Area C (Chinchilla to Dalby). Since publication of the EIS, the pipeline has been refined (**Part C**). Part of the refinement includes terminating the pipeline just north of Warra at chainage 218.7 km. The refined pipeline alignment results in approximately 75 km of (what was) SCL no longer being impacted. The potential economic impacts associated with this loss are therefore commensurately reduced.

As discussed in **Section 7.1.2** of Part B of the AEIS, the SCL Act and SPP 1/12 no longer exist but SunWater will address replacement or other relevant legislative requirements when development applications are made.

25.3.3. Reduced productivity associated with erosion

A submitter requested an assessment of the impact of erosion along the pipeline trench and particularly in the vicinity of Jimbour Creek. They also suggested the removal of the pipeline between Chinchilla and Dalby could alleviate potential impacts. As discussed in **Section 7.2.2** of Part B, impacts to agricultural land have reduced as a result of the following pipeline refinements:

- Termination of the pipeline near Warra instead of Dalby, reducing the length by approximately 45 km. This area, which will no longer be impacted by the pipeline, contained the highest amount of irrigated agriculture along the alignment.
- Realignment of the pipeline between Chinchilla and Warra from the eastern to the western side of the highway. This significantly reduces potential impacts related to flooding and erosion but removes the pipeline from sections of an existing road reserve to entirely within private property.

The refined pipeline's termination at Warra occurs approximately 20 km north-west of the junction with Jimbour Creek. Impacts of erosion at this location are therefore removed.

25.3.4. Agricultural water use

Several submitters suggested the EIS dismisses the commercial viability of the agricultural industry as a water user. A detailed response has been provided in **Section 1.6.1** of Part B of the AEIS.

25.3.5. Loss of agricultural productivity and avenues for compensation

In response to the comment requesting additional information with respect to reduction of water availability and its impact on productivity, including of the cotton industry, the reader is directed to the information provided below and updated water resource modelling detailed in **Chapter 14** of Part B of the AEIS.

The WRP targets are achieved for the high and medium priority user groups under both the "Full Entitlement" and "With Dam" scenarios; however, there is a reduction in compliance for the unsupplemented irrigator groups.

Changes to the mean annual diversion (MAD) of medium priority users are within the rounding error of the model so essentially zero. However, most irrigators in the Upper Dawson will see an improvement in the monthly reliability of generally 5%. This will provide significantly more certainty with respect to wetting up prior to planting and ensuring full irrigation can be applied for the growing season. However zone I sees about a 1% decrease

and it is recognised that this represents a potential opportunity cost to the affected user group. However, this impact is likely to be small.

The unsupplemented irrigators in the Dawson catchment experience an average reduction of 13% of their MAD (**Section 14.1.4.5**). The total MAD for both supplemented and unsupplemented agricultural users reduces from 96,207 ML/a to 90,165 ML/a or 6.3%. Given the improvement in reliability for many irrigators, the maximum impact on productivity is therefore *less than* 6.3%. Avenues for compensation are discussed in **Section 25.3.5.1**.

25.3.5.1. Compensation to water harvesters adversely affected by the dam

SunWater will negotiate compensation agreements with affected individuals, on a one-to-one basis. This is because individual circumstances and business requirements are expected to vary across the catchment and a single compensation strategy may not suit the needs of individual businesses.

While the option of financial compensation is expected to play a key part in compensation, several alternative water supply strategies have been investigated subsequent to the submission of the EIS. Detailed information is provided in **Section 14.3** of Part B of the AEIS. On the basis of those strategies, SunWater developed a methodology for calculation of compensation (as a water product, financial compensation or a mix of both) and presented it to a working group of water harvesters (including those who had made submissions of the EIS). The methodology was refined and SunWater expects it will be made a condition of approval of the Project, thereby ensuring its implementation. SunWater has provided the methodology and evidence of discussions to the Coordinator-General and this is reported in **Appendix B-14**. A fundamental tenet of the methodology is that there should be no net loss of irrigated agricultural productivity in the region.

One submitter stated that loss of agricultural productivity should be accounted for in deriving the opportunity costs associated with lost water-harvesting opportunities. As noted above, the compensation strategy for water harvesters is anchored to the principle of no net loss of irrigated agricultural productivity. It is understood that such a principle would account for opportunity costs, since overall productivity levels are preserved. Accordingly, the issue of opportunity costs has already been addressed through the compensation strategy.

25.4. Contribution to the local region

25.4.1. Contribution to the Western Downs Housing Trust

The mitigation and management of cumulative impacts, including the provision of housing across Queensland and the Surat Basin, is an issue that requires consideration by all project proponents in the area. As noted in the EIS (Section 24.7), SunWater will align with and contribute to existing government and industry initiatives that are being implemented within the region to mitigate potential impacts, including housing.

SunWater will liaise with local government during detailed design to determine the most appropriate means for contribution.

25.4.2. Contribution to the local government

A submission received from local government stated it will incur a loss of income (via rates) as a result of land being inundated by the water storage area. SunWater recognises this loss, though it relates to a relatively small

proportion of rateable land in the region and the impacts of the Project must be weighed against the benefits which include provision of a major recreation and tourist facility, upgraded roads with improved flood immunity and significant expenditure in the local area. SunWater will liaise with local government during detailed design to determine the net level of impact and discuss the most appropriate means for support.

25.4.3. Direct compensation for loss of productive land areas

One submitter claimed that growers will lose the most productive parts of their properties and in some cases irrigation land. Other submissions noted that the need for the Project to provide environmental offsets would also result in agricultural land being removed from production. It was requested that they are properly compensated for these potential losses. Fair compensation will be agreed as part of land purchase or easement negotiations for any Project purpose and as stated in **Section 25.3.1** these are conducted independently by DNRM State Valuation Services. For areas that may be designated as Nature Reserves, the negotiations may involve payments to the landholder to assist with maintenance of the reserve via maintenance of fencing or for control of fire, feral animals or weeds.

It is also considered that the overall loss of GQAL and grazing production is indirectly offset by increased regional water security and economic benefits stemming from the Project as described in Section 7.2.4 of the AEIS in relation to increased reliability and seasonality of supply for downstream irrigators.

25.4.4. Management of noxious plants via contribution to the local region

A submitter requested SunWater contribute toward the provision of new wash down facilities in Dalby and Chinchilla to prevent the spread of noxious weeds. Section 10.2.1.4 of the EIS described in detail mitigation measures to be implemented during construction and operation of the Project to reduce the risk of spreading and/or transferring weeds within area and this included vehicle wash-down.

SunWater will liaise with local government prior to construction to develop the most appropriate locations for the wash-down facilities.

25.4.5. Local procurement initiatives

A submitter requested the AEIS specifically address how local procurement processes will be established to engage with local and regional businesses.

Impacts on local business and industry were described in Section 24.5.3 of the EIS, while Table 24-44 outlined actions relating to local business development. Compliance with the policy and production of a Local Industry Participation Plan (LIPP) is a formal component of SunWater construction contracts and was further described in Section 25.4.3 of the EIS. SunWater notes some concern within submissions with the definition of “local” in the relevant policy and commits to focus efforts on “local” as defined in **Section 25.1**.

SunWater notes WDRC’s commitment to work collaboratively to appropriately engage with local and regional businesses and will avail to it following Project approval.

25.5. Sustainable development

A submission requested additional information in relation to the how the Project conforms to the core objectives of the *National Strategy for Ecologically Sustainable Development 1992*. The Project's conformance with the objectives and key principles of the *Strategy* were discussed in Section 25.5 of the EIS. Many pieces of legislation, both State and Federal, derive their Ecologically Sustainable Development (ESD) objectives from the *Strategy*. These legislative documents were noted in Section 1.11 of the EIS. Where relevant, discipline specific application of the ESD objectives was captured in the associated EIS chapters. Additional discussion has been provided below.

The core objectives of the strategy are:

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

In relation to these objectives, Section 25.5 of the EIS presented considerations with relation to the first and second objectives as these were specifically related to economics. Alignment with the third objective was covered in Section 1.11.2.1 of the EIS, with consideration of ESD via relevant legislation included in applicable Chapters of the EIS.

Additional to the information provided in Section 25.5 of the EIS, the Project also aligns with a number of regional and state policy initiatives. The following initiatives seek to assist in the development of regional communities in a number of ways, with some being state-based schemes and others having a more localised focus. The principal drivers for these schemes are support for infrastructure, employment and economic growth, as well as developing and maintaining sustainable regional communities. The Project will support these initiatives through contributions to employment, infrastructure development, and business activity. **Table 25-1** outlines other relevant policy initiatives and their key objectives which align with the Project.

Table 25-1 Alignment with government policy

Government policy	Key objectives
Queensland Regionalisation Strategy (RTS)- Growth Management Queensland	■ Support regional development ■ Generation of employment ■ Development of infrastructure
My Darling Downs Region Action Plan- Growth Management Queensland	■ Support growth in the resource sector ■ Link local business to new supply chains ■ Develop local infrastructure ■ Strengthen regional transport corridors
Surat Basin Future Directions- Queensland Government	■ Planning for growth ■ Developing infrastructure ■ Capturing economic opportunities ■ Developing the workforce ■ Building and maintaining regional communities
Surat Basin Regional Planning Framework	■ Planning for growth ■ Infrastructure development ■ Community cohesion ■ Economic development
Sustainable Resource Communities Strategy- Queensland Government	■ Strengthen social impact assessment for resource communities ■ Assist in addressing housing policy/initiatives ■ Foster partnerships between government, industry and community

25.6. Consideration of ecological factors as an economic variable

One submitter, in response to the Executive Summary requested a more expansive range of economic variables, including placing a value on ecological factors and species protection be considered. The impact assessment as defined within Section 5.1.2 of the ToR is required to analyse the direct economic impacts on industry and citizens, including property values, industry output, employment and factor incomes. 'Ecological factors' were not included in the aforementioned list, and arguably does not fall in the category of 'direct economic impacts'.

25.7. Application of a general equilibrium model

A submitter requested a regional computable general equilibrium (CGE) model be used to assess the regional impacts of constructing the Project. This request was understood to be an inter-departmental suggestion and in agreement with the OCG, SunWater was not required to complete this modelling as part of the AEIS.

25.8. Refined pipeline and economic analysis

25.8.1. Updated statistics of relevance

A submitter requested updated data be presented as part of the AEIS to appropriately capture changes to regional economic impacts following the submission of the EIS. Statistics for the region have been reviewed against the information provided in the EIS with a revised economic assessment for local, regional, state, and national indirect employment estimates based on:

- the direct employment estimates adjusted to Full Time Equivalents (FTEs) over the scheduled construction period for the dam (36 months) and the pipeline (33 months) and the proposed working rosters of 12 hours per day, 7 days per week and with 24 days on and then 7 days off for both the dam and the pipeline. The actual working hours are calculated as a proportion of a standard 40 hour week.

- relevant local, regional, state and national impacts based on the SKM Regional Input Output (IO) model using the latest ABS State and National Account Data and IO Tables (2010-2011), adjusted for average wage rises over the period; and
- the proportions of Project expenditure attributed to each location as shown in **Table 25-2** and the estimated dollar expenditure in **Table 25-4**.

For the purposes of the AEIS, statistics which were considered to have a notable change have been summarised below, all other statistics as provided in the EIS remain relevant.

25.8.1.1. Construction workforce

Construction of the dam will generate direct employment opportunities for approximately 90 total personnel, on average, over the 36 month dam construction period, peaking at approximately 170. This workforce includes a mix of on-site construction workers and professional support personnel including engineers, clerical staff, supervisors, foremen as well as soil technicians, environmental officers and their support staff (**Figure 25-1**).

Pipeline construction will employ a peak of some 355 personnel (including construction and support staff) programmed over 33 months. Support staff will be based at each of the site offices with staff moving between offices as required. The average total construction and support staff is estimated at 195 spread over time (**Figure 25-2**).

It should be noted that while these estimates reflect the number of personnel required, due to forecast working hours which exceeds the standard 40 hour week, the total FTE number will be greater.

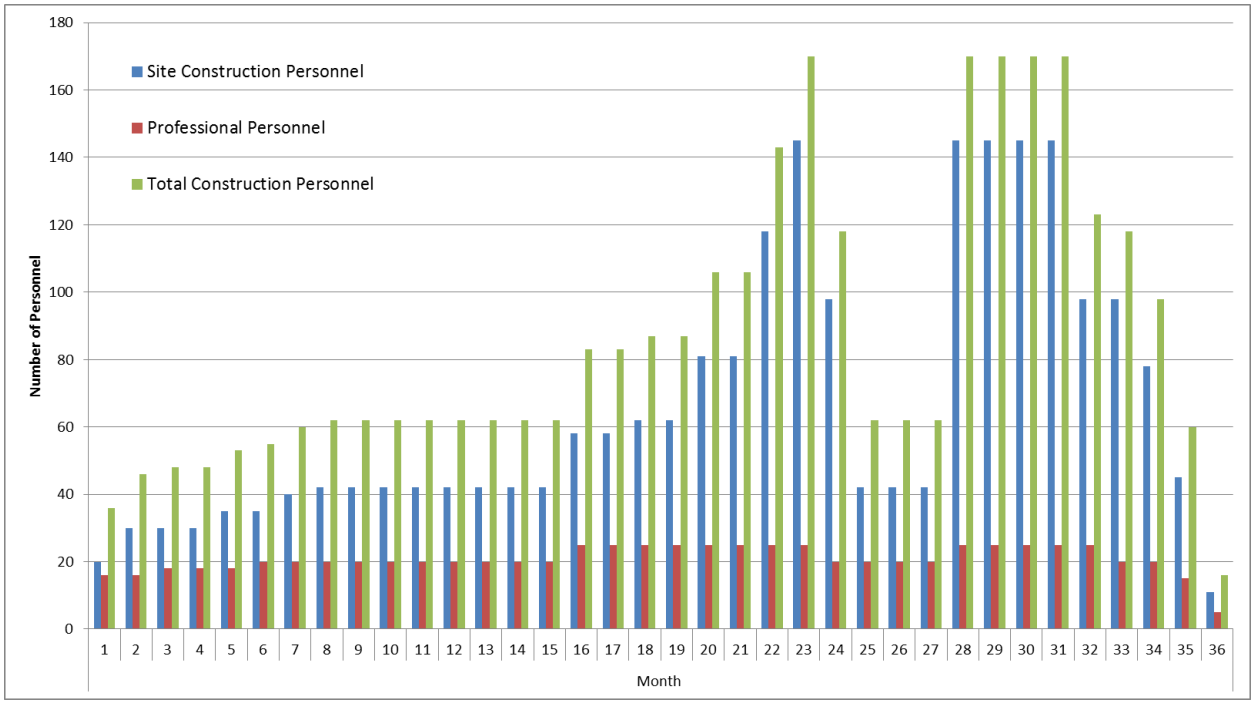

Figure 25-1 Estimated dam construction workforce profile

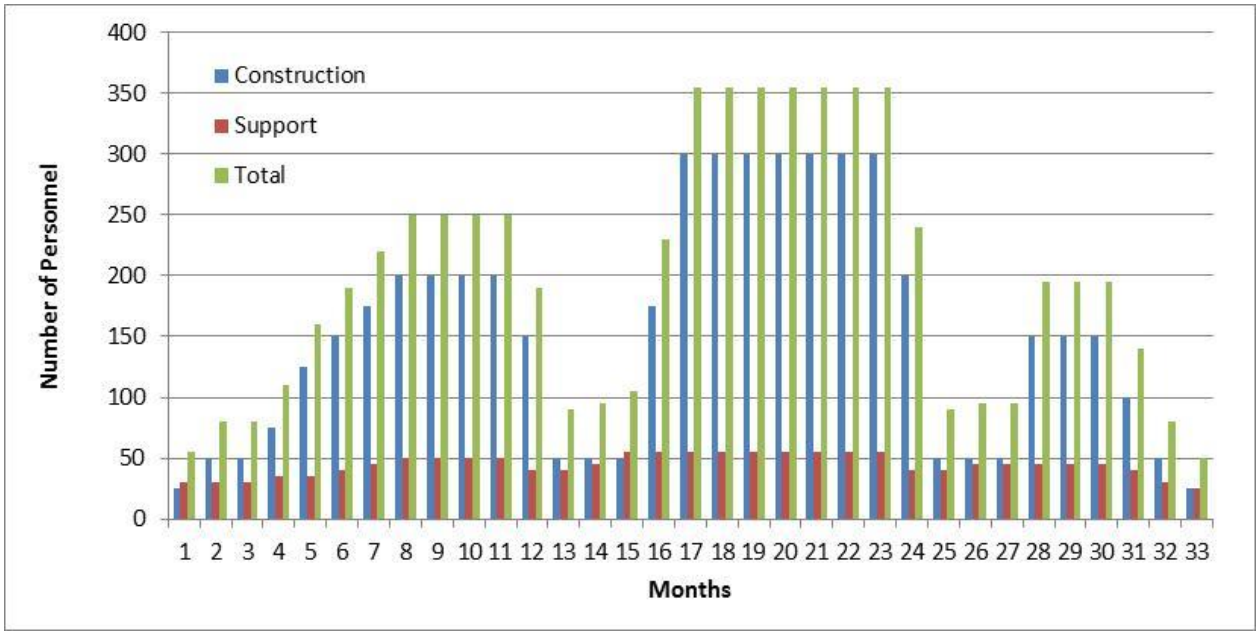

Figure 25-2 Estimated pipeline construction workforce profile

25.8.2. Flow on impacts

One submitter expressed concern that economic benefits presented in the EIS were specific to coal users only. It was also requested that the AEIS consider the local economic benefit of communities most likely to be affected. **Sections 25.8.2.1** and **25.8.2.2** outline potential benefits associated with expenditure required for construction and operation of the dam and pipeline. Benefits to coal users were not explicitly measured.

25.8.2.1. Construction

The total capital expenditure is estimated at approximately $1,190 million (**Table 25-2**). The proportional allocation of cost for the dam and pipeline has been provided by SunWater at approximately $650 million for the dam and $540 million (formally $740 million) attributed to the pipeline. The pipeline capital expenditure has been amended to reflect refined pipeline alignment as detailed in **Part C**.

Table 25-2 Estimated location of Project capital expenditure

Capital Costs $	Dam $650 million	Pipeline $540 million
Queensland	90%	75%
Other Australia	10%	20%
Overseas	0%	5%
Total	100%	100%

The location estimates in **Table 25-2** are based on the assumed proportions of employment and plant, materials and other expenses as discussed in Section 25.3.3 of the EIS and re-presented as **Table 25-3** below.

Table 25-3 Proportion of employment and plant, materials and other expenses assumptions

	Dam		Pipeline	
	Employment	**Plant/Materials**	**Employment**	**Plant/Materials**
Local/Region	10%	60%	10%	10%
Central Queensland	40%	20%	40%	20%
Other Queensland	30%	20%	30%	44%
Australia	20%	0%	20%	20%
Overseas	0%	0%	0%	6%
Total	100%	100%	100%	100%

Table 25-4 Expenditure by Location ($)

	Dam	**Pipeline**
Local Area	$390,000,000	$54,000,000
Regional Area	$130,000,000	$108,000,000
Queensland	$130,000,000	$237,600,000
Australia	$0	$108,000,000
Overseas	$0	$32,400,000
Total	**$650,000,000**	**$540,000,000**

The dam and pipeline components offer the potential to provide 348 FTE and 756 FTE jobs on average per year over their respective construction periods for a total of nearly 1,104 FTE additional jobs across Australia. The national figures include Queensland and are not additional. The higher national figure reflects leakages across regional boundaries associated with fixed supply of goods and services as well as industry linkages across regions.

Table 25-5 Estimated Construction flow on jobs

		Flow-On		
Dam Construction Employment	**Direct**	Indirect	Induced	**Total**
Local	9	39	16	**64**
Regional	45	54	54	**153**
Queensland	72	78	89	**239**
Total Domestic(2)	90	111	147	**348**
Pipeline Construction Employment				
Local	20	19	13	**51**
Regional	98	54	88	**239**
Queensland	156	141	176	**472**
Total Domestic(2)	195	242	320	**756**

Notes: (1) average annual FTE direct jobs over the construction period of the Project-Adjusted for Project Schedule and proposed work program. (2) Includes Local, Regional, and Queensland numbers - numbers may not add due to rounding

25.8.2.2. Operational

The Project is estimated to provide some 4-5 FTE on-going direct jobs. It is assumed that most of these will be based in the local study area. Using the SKM Regional Model, the Project operational phase could generate approximately 11 FTE flow on jobs in the local and regional areas with an additional 3 FTE jobs across Queensland and 2 FTE jobs elsewhere in Australia for a total of 20 potential FTEs as a result of the Project.

Table 25-6 Estimated Operational flow on jobs

Employment	Direct	Flow-On		Total
		Indirect	Induced	
Local	5	7	3	**16**
Regional	5	7	4	**16**
Queensland	5	7	5	**18**
Total Domestic	5	7	8	**20**

*numbers may not add due to rounding

Additional to the economic expenditure likely to benefit the local community, SunWater have committed to a series of action plans directed at benefiting the people employed by the Project as well as the local area in which the Project is located. Section 24.9.3 of the EIS detailed these actions which included, but was not limited to:

- engagement with local schools and education providers to develop partnerships and programs;
- consultation with community facility owners to discuss access requirements and preferences;
- provision of an Employee Assistance Program (EAP) to the Project workforce and their immediate families;
- working with the Western Downs Regional Council to develop and implement the Regional Housing Strategy and minimise impacts on affordable housing; and
- design and implementation of a community sponsorship program, to enhance community well-being and lifestyles.

One submitter expressed concern that the Project requires long-term water contracts in order for the Project to proceed and make a positive economic contribution to the community. The EIS and AEIS are prepared based on the assumption of benefits which could be achieved if the Project goes ahead. SunWater's approach to contracting follows standard business principles to ensure long term viability of the Project. The Business Case to be presented to the SunWater board will include appropriate business risk analysis.

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