QUEENSLAND FARMERS' FEDERATION

3 April 2007

The Secretary
Senate Rural & Regional Affairs & Transport Committee
Parliament House
CANBERRA ACT 2600

INQUIRY INTO ADDITIONAL WATER SUPPLIES FOR SOUTH EAST QUEENSLAND – TRAVESTON CROSSING DAM

The Queensland Farmers' Federation is pleased to have the opportunity to make a submission to the above inquiry. That submission is attached.

I am also forwarding to you by mail a printed copy of our Submission and an April 1993 Report by the Queensland Department of Primary Industries, entitled "Water Supply Sources for the Sunshine Coast and the Mary River Valley" which forms part of our submission but which is not available to me in an electronic version.

John Cherry
Chief Executive Officer

Queensland Farmers' Federation Ltd. A.C.N. 055 764 488 A.B.N. 44 055 764 488
Level 6, 183 North Quay (PO Box 12009 George St, Brisbane QLD 4003)
Phone: 07 3837 4747 Fax: 07 3236 4100 Email: qfarmers@qff.org.au
Web Site: http://www.qff.org.au

QFF SUBMISSION TO THE SENATE RURAL AND REGIONAL AFFAIRS AND TRANSPORT COMMITTEE INQUIRY INTO "Additional Water Supplies for South East Queensland – Traveston Crossing Dam"

The Queensland Farmers' Federation is the peak body representing the intensive agriculture sector in Queensland. This sector includes over 14,000 primary producers, employing over 35,000 people and generating more than $4.5 billion of agricultural product. Our member bodies include:

- CANEGROWERS
- Growcom (Qld Fruit and Vegetable Growers)
- Qld Dairyfarmers' Organisation
- Cotton Australia
- Nursery & Garden Industry Queensland
- Qld Chicken Growers' Association
- Qld Irrigators' Council
- Australian Prawn Farmers' Association

In making this submission, QFF wishes to make it clear that it has taken a stance neither supporting nor opposing the construction of a dam at Traveston Crossing. What we have always sought is a comprehensive and transparent assessment of the full costs and benefits of building at Traveston and the full costs and benefits of the alternatives. As part of that, we have also sought a detailed study by the State Government on the likely economic impact of the dam on rural industries in the Mary Valley, and ways of ameliorating that impact. QFF is not satisfied that the Queensland Government to date has engaged in a sufficiently robust public discussion on the full impact of the dam, or the costs and benefits of alternatives. We welcome this Inquiry as an opportunity to ensure further public debate on these very important issues.

This submission is in three parts. The first deals with the rural water policy management issues that arise from the decisions to build new dams at Traveston Crossing and Wyaralong. The second deals with the economic impact of the Traveston Dam on rural industries in the Mary Valley. The third explores briefly some of the public reports on alternatives.

This submission does not touch on the environmental impact of the proposed dam, as this is now a matter for the Federal Government to consider under the referral of the project under the *Environmental Protection and Biodiversity Conservation Act* and associated processes.

PART 1: Rural water policy management implications of new water storages in south east Queensland:

Water is a precious and limited resource in SEQ Region and surrounding regions. The issue is not just about the amount of water that the region needs but, importantly, how efficiently the community uses and manages its water resources.

The Qld Government's Strategic priorities for water in the region are:

- Ensure more efficient management and uses of water
- Increase the supply of water to accommodate growth in the region
- Diversify water supplies to address climate variability, climate change and other supply risks
- Ensure that policy frameworks and subsidies support total water cycle management; and
- Review institutional arrangements to ensure efficient, sustainable and equitable coordinate regional water planning and the delivery of bulk water supply and treatment services.

The Queensland Water Commission has been established as an independent, statutory authority responsible for achieving safe, secure and sustainable water supplies in South East Queensland and other designated regions. The Commission recently released a report on Urban Supply Arrangements in SEQ. The report highlights a number of recommendations for the establishment of a water grid in SEQ to address the Qld Government's priorities for water in the region. Recommendations that are pertinent to the Senate Inquiry are as follows:

1. The Grid is to provide a security of regional supply based upon defined levels of service objectives to address hydrological risk. The levels of service objectives are to be assessed at the bulk supply level and defined in terms of the maximum duration, frequency and severity of water restrictions that may be expected by end user of water including rural users.

   There is a real concern in rural communities that drought water supply plans based on a level of service approach will be applied without any due consideration of the implications for rural supplemented and unsupplemented water users throughout the region and the Mary Basin. There is also a concern that development of new dams at Wyaralong (along with a weir at Cedar Grove on the Logan River) and Traveston Crossing for dedicated urban supply will also increase drought declaration thresholds directly impacting on medium priority rural supply in these catchments. For example, the yield at the Cedar Grove weir relies not only on the Wyaralong Dam (on the Teviot Brook), but also on water drawn from the entire Logan catchment. This then has long term consequences for irrigation water entitlements across the entire Logan Valley, particularly in extreme drought situations.

Recommendation 1: The Commission should advise what measures will be put in place in developing and applying a levels of service approach and the development of new dams to assess the risks to irrigated agriculture from increased restrictions on water access and to monitor and report on outcomes annually.

2. The proposed Wyaralong and Traveston Crossing Dams are to be included in the Water Grid when they are operational. Also the Water Act is to be amended to provide for the declaration of existing assets to be included in the Grid and additions to the Grid are to be determined by the NRW Minister either by application of a relevant water provider or as a condition of development approval for new infrastructure or upon a recommendation of the QLD Water Commission.

   This process of addition to the grid assumes adequate assessment and approval of new projects such as Traveston and Wyaralong dams and particularly an adequate assessment of the need for these projects to be added to a grid which already adequately caters for demand growth in the region.

Recommendation 2: QLD Water Commission be required to justify the addition of new dam projects to the grid as a basis for the Minister's determination.

3. Arrangements are to be made in the SEQ region to allow the trading of water between the grid manager and rural users subject to the requirements of a system operating plan.

   Entitlement holders likely to be affected by dam options have expressed interest in transferring or trading their entitlements within the catchments of the dams to support continued agricultural activity in these regions. It has not been clarified whether this option is to be allowed.

   These arrangements for trading of water also apply within the SEQ Region and not the Mary Basin where the Traveston dam will severely limit the additional water resources that will be available for future development

Recommendation 3 : QLD Water Commission to advise:

a. Whether water entitlement holders to be affected by property acquisition for the dams have the option to transfer or trade their entitlements within the catchments of the proposed dams.
b. What scope there is to make additional water available for development in the Mary Basin if the Traveston Dam proceeds

In addition to these issues, the Water Resource Plans for the Mary Basin and the Logan Basin have identified additional allocations of water for development while still meeting environmental flow and water security objectives in these plan areas. The Wyaralong and Traveston dam proposals will access these additional allocations.

It is understood that the resource operations plans for both Basins will be amended to provide for the dam developments.

Apart from implications of the operation these dams for irrigation access during droughts there is some uncertainty what impact (positive or negative) the operating arrangements for these schemes will have on existing medium priority rural supply in the Mary and Logan Basins.

The inclusion of major metropolitan urban water supply dams in the Logan and Mary valleys have the potential to impact on the availability of water for irrigation purposes both upstream and downstream, particularly in an extreme drought situation. With climate change projections predicting reduced rainfall and runoff and more extreme weather events (including drought) in south east Queensland, these water storages add to the 'extreme drought risk' prospect of water being denied to rural industry to shore up urban supplies. The extensive irrigation scheme on the Lower Mary, for example, supports a substantial cane growing industry on a very reliable water supply system. Growers need to know under what scenarios water supply could be impacted in the future in times of drought.

Recommendation 4: Department of Natural Resources and Water should advise what implications the proposed dams will have for environmental flows and security of access within the subcatchments of the Logan and Mary Basins, particularly in extreme drought situations.

PART 2: Economic impact on agriculture of the Traveston Dam on the Mary Valley

The Traveston dam in the middle of the Mary Valley will have a very significant impact on the regional economy of the Mary Valley, as well as a potentially broader impact on maintaining economies of scale in dairy processing in southern Queensland. When the Premier first announced the dam in July 2006, it was estimated that around 1000 property lots could be affected. QFF was advised that around 670 lots were rural residential, and 182 were primary production. 41 held milking licences, 78 beef breeding lots and the remainder were mixed. Around 700 residents lived in the proposed impacted area.

Number of properties impacted by Traveston Dam

	Oct 2006 Estimates Stage 1	July 2006 Estimates Stage 1	Oct 2006 Estimates Stage 2	July 2006 Estimate Stage 2
Total Properties affected	332	500	597 (includes 332 from stage 1)	1000
Houses required for Dam and roads	76	NA	204 (includes 76 from stage 1)	556 (excluding road requirements)

(Source: Anna Bligh media release October 31 2006)

With the announcement of the wall alignment and the final boundaries of the impacted area by Deputy Premier Anna Bligh on October 31, the number of properties impacted reduced significantly, with the total number of properties impacted reduced from 1000 to around 597. The total area to be flooded reduced from 13700 hectares to 9800 hectares. Traveston Crossing Stage 1, which is estimated to cost $1.7 billion, has a completion date of 2011 and Stage 2, if required, by 2035. Stage 1's capacity is now 153,000 megalitres with a yield of 70,000 megalitres. The completed Stage 2, by 2035 will have a capacity of a massive 570,000 megalitres with a yield of up to 150,000 megalitres.

Primary production has been estimated by DPI&F to be within a range of $17 million to $23 million[1]. The area included two very significant dairy producers, the State's largest ginger producer, and a significant number of macadamia, pineapple and vegetable farms. Approximately 120 actual rural properties would be affected. With the full inundation impacting on around 40km of the middle Mary Valley, this would have a significant impact on Cooloola Shire's agricultural output, reducing total agricultural output by around a quarter.

Economic Impact of Traveston Dam on local rural economy

Industry	Traveston Impact ($m) value	Cooloola Shire total ($m) value 2000/01		%
Dairy	$9.1m*	$22.7m		42%*
Horticulture	$4.5m	$25.0m		18%
Beef	$2m	$19.3m		11.%
Other	$1.5m	$6.4m		23%
TOTAL	$17.0m	$73.4m		23%

(source: ACIL Tasman 2006, citing DPI&F and ABS data)[2]

*The Queensland Dairyfarmers' Organisation estimates the full economic impact at $10.6 million, talking into account the $1.46 million that dairy farmers receive for non-milk products (i.e. cattle and feed produce). Current dairy farm numbers for the Cooloola Shire is approximately 60 with annual combined production of around 54 million litres plus other sales which equates to about $25 million per annum. Therefore impact would account for approximately 42% the Shire's dairy output.[3]

In terms of employment, the economic impact of the dam will be significant. According to 2000/01 census data, agriculture accounted for 1578 jobs, or 13% of the jobs in Cooloola Shire. Based on the above analysis, QFF estimates that the reduction in

[1] Advice to QFF June 2006, also reported in ACIL Tasman p.21
[2] ACIL Tasman "Scoping Economic Futures – Traveston Crossing Region" Report for the Queensland Government Dept of State Development and Trade February 2007 p. 21-9
[3] The bulk of the Traveston Dam impact is felt in Cooloola Shire, although there is also some agricultural activities in the parts of Noosa Shire and Maroochy Shire that will be inundated by Stage 2 of the dam.

agricultural output forecast above would result in a loss of 267 jobs directly, and as many as three times that number indirectly. The losses by industry would be:

Estimated rural employment impact of Traveston dam

Industry	Employment 2000-01 Cooloola Shire*	Jobs lost
Dairy	232	93
Horticulture	585	105
Beef	271	30
Fishing & forestry	321	n.a.
Other	169	39
TOTAL	1578	267

*Source: ABS census data 2000/01

Impact on Dairy Industry

The dairy industry has undergone a significant restructuring in Queensland over the last decade, with the number of working farms almost halving and total production falling almost 30% over the last decade. The Mary Valley has traditionally been a major dairying region, although rationalisation and drought conditions have impacted on the total amount of dairying on the valley. In 2000/01, dairying was the second biggest rural industry in Cooloola Shire (after horticulture), with the Mary Valley producing around 10% of the total milk in the State. It is estimated that around 40% the dairying production in the Cooloola Shire will be impacted by the Traveston Dam (30% of total dairying value in the Mary Valley), reducing total State milk production by around 4.3%,[4] and production in Southern Queensland by around 5%.[5] The Queensland Dairyfarmers' Organisation estimates that around 20 dairy farms will be impacted by the dam, collectively producing around 24 million litres per annum worth approximately $9.12 million per annum. These farms also account for a further $1.46 million in other production (e.g. cattle and produce sales), making for a total farm gate impact of $10.58 million per annum. In terms of employment, QDO estimates that, with farms employing on average around 3 full time equivalent workers, around 60 permanent jobs would disappear.

The broader impact on the dairy industry in terms of value-add is even more significant. The dairy industry commonly uses a multiplier of 4 to 1 when calculating the economic flow on effect to the broader economy. These diary farmers rely on a wide range of goods and service businesses within the region to enable them to successfully operate their businesses examples include parts supplies, feed supplies, transport, fuel, advisory services, AI supplies, machinery supplies, contractor services, chemicals, fertiliser, veterinary services, insurance, banking, accounting services etc. All of these regional goods and service businesses will also be impacted.

[4] ACIL Tasman p.21
[5] DPI Prospects March 2007

Multiplier Effect of reduced milk production

Source	$/lt Milk	Value of Impacted Mary Valley Milk Production
Farm Gate	0.38	$ 9 120 000
Ex Factory	1.00	$ 24 000 000
Ex Retail	1.55	$ 37 200 000

Dairy farms in this region are considered to be amongst the most productive and reliable supply farms in South East Queensland and are a reliable supply base for processors whom require year round production. The loss of 30% of milk production in the Mary Valley could have a significant impact on the viability of the local milk processor, Cooloola Milk, in Gympie. It could also have a flow on impact on the 22 milk processors across south east Queensland, which have been completing for milk supply in a region where milk production has contracted by 27 per cent in the last five years due to rationalisation and drought.[6] The licensed dairy processors across South East Queensland are located as per the following table:

	Milk			Milk Powder			Cheese			Ice Cream
	Small	Med	Large	Small	Med	Large	Small	Med	Large	All
Beaudesert							1			
Brisbane City	1	1	1	3	1					
Caboolture								1		1
Caloundra	1						1			
Cooloola		1								
Gold Coast			1	1	1			1		1
Ipswich			1			1				
Logan			1	1						
Maroochy								1		
Toowoomba										1
Sub-Totals	**2**	**2**	**4**	**5**	**2**	**1**	**2**	**3**	**0**	**3**
Regional Total	**24**									

(Source: Queensland Dairyfarmers' Organisation)

Impact on horticulture

DPI&F estimates show that around $4.5 million of horticultural production would be lost by the full Traveston Dam. By value, horticulture is the largest agricultural industry in the Cooloola Shire, constituting 34% of total value of agricultural production, and 37% of employment (some 585 jobs). Getting estimates of the value of horticultural production in the affected part of Mary Valley is very difficult. DPI&F produced a range of $17 – 23 million for estimated economic impact of the dam, and QFF suspects that the nature of this range is reflected in the dynamic nature of horticultural production. The figures used by ACIL Tasman suggest that losses to horticulture from the dam would be around $4.5

[6] DPI Prospects March 2007, September 2004

million (out of $17 million) which would represent around 15 – 20% of estimated horticultural production in Cooloola Shire. ABS census data shows the following value for major horticulture crops in Cooloola Shire:

Cooloola Shire horticultural production (2000/01)

Crop	Value 2000/01 $ (thousand)
French & runner beans	$5,190
Snow peas	$2,264
Zucchini	$494
Marrows & squashes	$300
Tomatoes	$268
Green peas	$223
Cucumbers	$133
TOTAL VEGETABLES	$10,795
Macadamia nuts	$4,611
Pineapples	$3,747
Pawpaw/papaya	$1,434
Avocadoes	$1,219
Mangoes	$808
Bananas	$390
Oranges	$324
Strawberries	$212
Peaches & nectarines	$170
TOTAL FRUIT	$14,200

A 2004 report on the *Economic Contribution of Horticulture Industries* commissioned by Growcom shows the total value of horticulture in the Sunshine Coast/Cooloola region was $119 million, of which Cooloola represents around 21 per cent, Cooloola produced 86% of the region's French and runner beans (the region being the largest producer of hand picked beans in Australia), 66% of the region's macadamia nuts (the region being the second largest producer of macadamia nuts in Australia), 17% of avocadoes and 13% of pineapples.

The report showed that between 1993 and 2001 total value of horticultural production in the region increased by 47% from $80.8m to $119.1m, the biggest increase being in orchard fruit and nuts (especially macadamias and avocadoes) – up by 55.5%, and vegetables – up by 38.8%. Much of this growth occurred in the Cooloola shire, as development land pressure was lesser. This level of production:

- resulted in purchase of around $36 million of goods and services from other businesses in the region;
- resulted in purchases of around $59 million of goods and services from outside the region;
- resulted in value-adding industries of around $59 million;
- supported 2096 jobs directly and a further 776 jobs indirectly;

- the bulk of workers employed were in full time jobs (59%) and were aged 45 or more.[7]

The report identified water availability and labour availability as critical issues for industry in the region. Labour is the major supply issue in winter and early spring, with the majority of workers sourced locally. Development land pressure has also seen production shifting gradually north from the Sunshine Coast into the Mary Valley.

The construction of the Traveston Dam will increase land pressure on the future development of horticulture in the region. With the largest growth in crops occurring mostly in Cooloola shire (e.g. macadamias and beans), horticultural industry growth will be further constrained. It is unlikely that industry can continue to migrate into the Mary Valley as the dam will result in a contraction in available water entitlements and irrigatable land. The need to find 500 new employees during the construction phase is also likely to adversely impact on thievery tight labour market in the area. Whether industry will be able to recover and re-create jobs when the dam is completed and the construction jobs disappear is questionable.

Broader economic impacts on rural industries

Further, in considering the impact on rural industry in the region, the upstream and downstream impact also needs to be considered. Rural production above the dam could be impacted by any environmental restrictions imposed to improve water quality in the dam. The Mary River is already known to carry a substantial sediment load raising fears of siltation.[8] The shallowness of a large part of the dam will also make water quality a burning issue. Intensive industries, particularly dairy, could be made subject to significant restrictions on water quality with the dam in place, putting further pressure on tight profit margins and continuing production.

Rural industries both upstream and downstream also face a further risk in drought conditions of reduced access to irrigation water entitlements as priority is always given to securing urban supplies. The Lower Mary irrigation system, which supports a substantial sugar cane growing industry, has traditionally been very reliable. However, in an extreme drought situation, with the Mary connected to the South East water grid, securing urban supplies will take greater priority. As discussed earlier, the Department needs to do some assessment of this risk, particularly given the impact of increased climate variability and climate change. The Lower Mary currently enjoys 100% irrigation water allocations. However, if Traveston were in place now and large amounts of water were diverted to Brisbane, it would be very likely that restrictions would have been imposed.

---

[7] CDI Pinnacle/Street Ryan Economic Contribution of Horticulture Industries to the Queensland and Australian Economies Growcom/HAL November 2004 pp. 111-112

[8] GHD Consultants "South East Queensland Regional Water Supply Strategy: Desktop Review of Identified Dam and Weir Sites" June 2006 p. 630

The reduction in milk production in the Mary Valley could have broader consequences for industry in terms of maintaining economies of scale for the current number of milk and dairy processors in southern Queensland. This broader impact, discussed earlier, also needs to be considered carefully.

Finally, and most importantly, the Government needs to give careful consideration to assisting rural producers to move their operations if they so wish, thereby minimising the impact on local industry. Three factors are crucial to relocation of rural industries – access to suitable, affordable land; access to reliable water and access to markets and infrastructure. The Mary Valley, with its deep alluvial soils, reliable water supplies and proximity to Brisbane, has been am important rural production centre. As far as possible, producers should be assisted to move in the local area. A key factor in this could be providing access to irrigation water entitlements. QFF has been advised by DNR&W that water entitlements on land acquired for the dam will cease. QFF would urge the Government to consider allowing primary producers seeking to relocate upstream or downstream to take their water entitlements with them. There is sufficient scope in the Mary Valley Water Resource Plan to allow for such a development, and it could be incentive that producers need to stay in the region. The ACIL Tasman report noted that:

"The majority of dairy owners are close to retirement age, although a number involve their children in the farm business. Long term prospects for dairy are positive. It appears that around half of the dairy producers will see relocation within the area, whilst the remainder will retire. Opportunities to change the size of the milking herd and install modern milking sheas exist for those seeking to relocate. The majority of the intensive beef farmers and fodder dropping producers are likely to seek to relocate."[9]

The importance of providing adequate relocation assistance, including advice, access to water and appropriate compensation will be crucial to minimising the economic impacts of the dam if it goes ahead.

Overall assessment:

Cooloola Shire Council, in its submission to the Premier, warned that the economic impact on the shire from the dam would be significant:

"State planning guidelines stress the importance of retaining good agricultural land and this was recognised when the dam was originally rejected in 1994. The proposed dam would inundate irreplaceable agricultural land. The devastating economic impact of the proposed dam would not be limited to the local economy. It would also have ramifications at a regional and state level. The Mary Valley and in particular the alluvial are close to water courses is one of the most proactive areas in the Share. The economy of the whole valley would be virtually wiped out…

"No business in the Gympie district will be immune, even the ostensibly unrelated businesses such as coffee shops or dress shops. The local economy has already suffered the severe impact on dairy regulation and the South East Queensland Forest Agreement meaning that many businesses

[9] ACIL Tasman p.21-2

are operating on very low margins. A further assault on the local economy of the magnitude of the loss of the Mary Valley will be impossible to absorb and the flow on effects will be disastrous."[10]

ACIL Tasman paints a more rosy picture, but with rural industries taking more of a back seat to the growth in 'lifestyle' real estate and tourism:

"Gympie for example, has traditionally provided services to the rural economy. In the future it may increasingly provide services to the urban coastal economy. As well as servicing the needs of rural producers it may increasingly service the needs of ageing urban consumers. In doing so, however, those concerned will need to manage two economies: a service economy and an industrial economy. Tourism and lifestyle economies will require new development that are essentially rural or rely on the coastal environment. In both cases development has to be consistent with preserving the environment, the principal reason for the service."[11]

ACIL Tasman warns that:

"The issue of restructuring in the agricultural sector may have to be investigated, both because of the loss of some dairy and other producers in the dam vicinity, and the competition from small acreage farms and rural residential lifestyle in the region, at a times when those seeking similar activities in the region need larger parcels of land to achieve larger scales of production for full time production…..

"The progression from agriculture to hobby farms and lifestyle uses to residential uses may not be desirable. It is important therefore to undertake a broader study to agree on a balance of land uses in each locality and allow the market to operate thereafter."[12]

Thus the report concedes that competition for land and water in the Mary Valley will see agriculture continue to be squeezed. This could have further impacts on industry economies of scale (especially in dairy) that could have wider regional consequences. QFF is disappointed that further work on industry restructuring in the Mary Valley and its consequences has not yet been carried out.

Recommendation 5: That a more detailed economic impact statement on the impact of the Traveston Dam be conducted including:

- the broader economic impacts, particularly on the dairy industry;
- risk management consequences for upstream and downstream producers;
- achieving an effective balance between longer term intensive agricultural land use and hobby/lifestyle and residential expansion as identified by ACIL Tasman

[10] Cooloola Shire Council "Submission to the Premier requesting that the Proposed Dam on the Mary River Not Proceed" July 2006 p. 3, 5
[11] ACIL Tasman p. 43
[12] ACIL Tasman p.45

Recommendation 6: That a comprehensive adjustment assistance package be provided to farmers seeking to relocate, including detailed business and agronomic advice, the ability to access water entitlements and full compensation for loss of productive capacity on the former site.

PART 3: Consideration of alternatives to the construction of the Traveston Dam:

QFF does not have a view on whether Traveston Dam should be built or not. However, QFF and its member organisations Queensland Dairyfarmers' Organisation and Growcom are of the firm view that a full cost-benefit analysis of the dam, having regard to the full economic and social impacts of the dam, and a full cost-benefit analysis of alternatives to the dam, need to be considered. Such an analysis need to be comprehensive and fully transparent, allowing for the public and industry to assess and respond to assertions.

QFF is aware of a range of reports which cast some doubt on the Government's assertion that Traveston Dam is the best option for securing the water supply needs for South East Queensland. A brief summary of some of these reports follows:

a. 1993 DPI Water Resources Study of the Sunshine Coast and the Mary River Valley

In 1993, DPI Water Resources was commissioned to do a study of how to meet the future water needs of the Sunshine Coast and Mary River Valley. The report is attached for the information of the Committee. While this study had a more limited objective than the current Government objective of using Mary River water to secure the south east's water needs, the study is nevertheless significant.

The study recognised that the Traveston Crossing Site presented the largest potential impoundment and yield in the region, but rejected the site for a possible dam because:

"Dam site considered unsuitable because of high capital cost, inundation of prime agricultural land and displacement of rural population."[13]

The study was more positive about the potential for the dam site on the upper Mary River at Cambroon, which offered a capacity of 45,000 to 670,000 Ml and a yield of 28,600 to 95,000 Ml/a (depending on the height of the wall):

"Good confinement at site…..Higher levels of development of this site will impact on town of Connondale, site has greatest potential to meet future demands at reasonable cost of all S/W options.[14]"

[13] DPI Water Resources "Water Supply Sources for the Sunshine Coats and the Mary River Valley" April 1993 p.45

The report also noted that the Cambroon site would displace around 220 people (depending on its height).
The report considered sites including Amamoor Creek and the Kidaman site on Obi Obi Creek, but reported low yields on both sites (20,900 Ml/a and 14,400 Ml/a) and serious environmental issues, particularly to Mary River Cod habitat.[15] The report finally recommends the raising of Borumba Dam as its preferred option, with the Government specifically excluding the Cambroon and Kidaman sites from further examination "because of their higher costs and significant social and environmental impacts."[16]

b. 2006 GHD South East Queensland Water Supply Strategy

GHD Ranking of possible water projects by unit cost[17]

Option	Storage capacity (Ml)	Yield (Ml/a)	Est. cap. Cost ($m)	Unit capital cost ($/Ml/a)
1. Mary River (Cambroon)	127,247	52,930	206.3	3,898
2. Flood harvesting from Coomera river into a raised Hinze Dam		11,000	46.9	4,266
3. Obi Obi Creek (Kidaman), Mary system	172,898	36,883	172.5	4,677
4. Mary River (Traveston)	1,130,000	215,340	1011.1	4,695
5. Teviot Brook (Wyaralong) with Cedar Grove Weir on Logan	97,025	26,674	127.7	4,790
6. Logan River (Tilley's Bridge) with Cedar grove Weir	100,000	42,714	223.1	5,223
7. Flood harvesting from Coomera, Canungra, Mudgeeraba and Tallebudgera Creeks into Hinze Dam		22,600	129.1	5,712
8. Wyaralong and Tilley's Bridge (half size) and Cedar Grove Weir		50,000	301.3	6,025
9. Wyaralong and Tilley's Bridge (full size) and Cedar Grove Weir		59,000	356.8	6,046
10. Amamoor Creek, Mary system	218,685	26,654	162.2	6,085
11. Flood harvesting from Coomera and Mudgeeraba Creeks into Hinze Dam		12,500	77.7	6,215
12. Raising Borumba (Yabba Creek) with new weir on Mary	474,581	39,236	266.7	6,797
13. Raising Wappa Dam (South Maroochy River)	81,230	30,004	238.0	7,932
14. Glendower (Albert River)	111,800	30,000	261.5	8,717

[14] Ibid p.110 also p.71
[15] Ibid p. 61-2 and 110
[16] Ibid p.113
[17] GHD Consultants "South East Queensland Regional Water Supply Strategy: Desktop Review of Identified Dam and Weir Sites" June 2006 p.iv-v

15. Cedar Grove dam (Logan)	295,136	78,346	786.9	9,814
16. Coomera River Dam	110,678	42,688	503.9	11,804
17. Raising Hinze Dam (Nerang)	323,000	8,150	127.5	15,638
18. Zillman's Crossing (Caboolture)	56,630	9,554	189.5	19,837

The report by GHD engineering to the State Government's Bulk Infrastructure Task Group was a desktop review of 15 projects with the potential to meet the future needs of south east Queensland, ranked as above by least cost per megalitre of yield for each dam.

The report raises a number of concerns with the Traveston site, including impact on Mary River Cod habitat and the Great Sandy Straits, high river sediment loads and potential siltation, the large number of properties needing to be resumed, possible impacts on Imbil and Kandanga depending on the height of the dam, possible seepage problems at the dam wall because of alluvial soils and possible difficulty of obtaining an appropriate earthquake loading for the dam wall given fault lines in the area.[18] The report concludes that the dam is most cost effective at the height of ASL 85m, which delivers a yield of around 211,000 megalitres off a 10,000 hectare storage area.[19] The option eventually agreed to by Government is for a smaller dam (ASL 79.5) with a smaller yield (approx. 150,000 Ml/a) and smaller storage area (7000 hectare). The GHD estimate on cost effectiveness of this option was $5,243 per Ml/a, which would have ranked 7th rather than 4th in the cost effectiveness ranking table. The Cooloola Shire Council has noted that the final cost of the dam estimated by Government at $1.7 billion (instead of GHD's estimate of $859 million) and its lower yield would have pushed the dam's cost effectiveness down to the very bottom of the GHD table. [20]

Of the options considered by GHD, Cambroon Dam on the Upper Mary was again found to be the most cost effective. The report considered various options for this dam, finding that the most cost effective was a smaller dam (EL 130m). At EL 128m, the township of Connondale would not be flooded, although part of it would be in the buffer zone. Thus, it could be possible to configure a dam at Cambroon that would preserve Connondale while providing a significant yield of around 50,000 Ml/a. [21] Even if the township of Connodale was to be resumed, the report found that the likely land acquisition costs ($90-120 million) would be a fraction of Traveston's impact ($226m – 335m). [22]The report also considered the Kidaman site on Obi Obi Creek, noting significant environment concerns. [23] Raising Borumba Dam, an option accepted by the Government, was found to be less cost effective than the other alternatives in the Mary Valley because of the high capital cost of constructing the dam itself in comparison with the yield.[24]

---

[18] Ibid pp. 630-633
[19] P. 638, 628
[20] Cooloola Shire Council "Response to Water for South East Queensland. A Long Term Solution' Report" July 2006 p. 3
[21] GHD pp 475 - 487
[22] Pp. 487, 636
[23] P. 580
[24] P. 544

The GHD report does not cover the costs of pipelines and transport of water, which is likely to be substantial. Given the Cambroon site is some 60km upstream of Traveston and 50 metres higher, pipelines and pumping costs are also likely to be considerably less.

The State Government, in its commentary on the GHD Report, notes that the estimated yields in the GHD Report are based on historical periods of rainfall and stream flow data, and do not incorporate consideration of environmental flow requirements, nor any consideration of the levels of service implications such as the frequency, duration and severity of restrictions and the impacts of allowing for droughts worse than on historical record. The Department of Natural Resources and Water produced 'prudent yield estimates' having regard to these considerations as follows:

DNR&W Preliminary Estimates of Prudent Yield[25]

Option	GHD Report Yield (Ml/a)	DNR&W Prudent Yield Estimate (Ml/a)	Revised Unit Capital Cost ($/Ml/a)
1. Cambroon	52,930	40,000	$5158
2. Kidaman	36,883	27,500	$6273
3. Water harvesting from Coomera, Canungra, Mudgeeraba and Tallebudgera Creeks into raised Hinze Dam	22,600	10,000	$12,910
4. Traveston	161,000 (660,000 capacity)	120,600	$7125* ($14000#)
5. Wyaralong	26,674	21,000	$6081
6. Tilley's Bridge	42,714	35,000	$6374
7. Amamoor	26,654	20,000	$8110
8. Raising Borumba	39,236	29,400	$9071
9. Raising Wappa	30,004	16,500	$14424
10. Glendower	30,000	18,000	$14528
11. Cedar Grove	78,346	55,000	$13980
12. Coomera	42,688	20,000	$25195
13. Raising Hinze	8,150	6,000	$21250
14. Zillman's Crossing	9,554	8,000	$23688

(*at 660,000 Ml capacity rather than the most cost effective larger option,
#using Govt cost estimate of $1.7 billion)

Even with the DNR&W 'prudent yields' Cambroon is still the most cost effective option, and Traveston drops to 5th ranking, 15th with the Government's higher cost estimate.

c. UTS Cardno Review of Water Supply-Demand Options for SEQ 2007-03-30

The third report of significance is the report commissioned by the Mary River Council of Mayors from the University of Technology Sydney Institute for Sustainable futures and

[25] Queensland Government Fact Sheet "GHD – desk top review of identified dam and weir sites" July 2006, DNR&W website

Cardno consultants, released by UTS in February 2007. This report fundamentally questions the assumptions used by the State Government in determining both future supply and demand for water in South East Queensland, and provides demand management alternatives that, they argue would be more cost effective than the Traveston Dam option. [26]

On the yield from existing supply resources, the report notes that estimates have been reduced from 635 Gl/a to 450 Gl/a "primarily as a result of changed assumptions… (that) are very conservative, and differ considerably from standards that apply in comparable cities". The supply projections assumes a business as usual residential demand of 300 litres per capita per day up to 2050, which is "significantly higher than the demand in comparable eastern seaboard cities (and) likely to be an over estimate (that) does not adequately take into consideration expected downward pressure on water demand die to changes inland use (urban consolidation with the association reduction in lawn and garden area) and the improving efficiency of water use including equipment such as dual flush toilets". The report concludes that the supply-demand gap "is considered to be extreme and unjustified", and that the projections of reduced yield and elevated demand has implications for the supply-demand balance in 2050 "significantly greater than the yield of the proposed dam at Traveston Crossing."

Even accepting the Government's estimate of supply and demand projections, the authors argue that a suite of demand management options is a far more cost effective alternative to a new dam with a lower risk rating (not being rainfall dependent) and producing a round 1 million tonnes of carbon and greenhouse gases each year:

"The most effective option, based on current experience in many places around Australia, including Pimpama Coomera on the gold Coast, focus on improving the efficiency of water use and increasing recycling and rainwater capture in new developments. New developments are driving the increase in demand, so a strategy which directs attention towards this growth sector is likely to be most effective in curbing upward pressure on demand. Other options include water efficiency standards for water using appliances and fixtures, extending the existing rebate, retrofit and business water saving programs, outdoor water efficiency programs".

This suite of options could deliver savings of 190Gl/a at an average unit cost of $1.15/kl, compared to the Traveston Dam's yield of 150 Gl/a at a unit cost of approximately $3/kl.

ABS data shows that Queensland residents use substantially more water than most other households in Australia, around 50% more than New South Wales or Victorian residents. Further, the data shows that most of this extra water is used outside the home (50% of residential water use in Queensland, compared to 25% in NSW and 35% in Victoria[27]). 17.4% of Queensland homes had water tanks in 2004, compared to 48% in South Australia. Since 2002, the Brisbane City Council has provided rebates for more than 27,000 additional tanks, and expects a further 9500 will be installed by the end of the

[26] UTS Cardno "Review of Water Supply-Demand Options for South East Queensland" Report for Mary River Council of Mayors February 2007 executive summary
[27] ABS Water Account 2000-01 cat. No 4610

year.[28] In January 2007, south east Queensland's water usage had fallen 40% below its pre-drought usage levels (721 megalitres per day), falling further to 669 megalitres in March.[29] While the community would not be prepared to accept Level 4 water restrictions on a permanent basis, the fact that south east Queensland resident exceeded the water savings targets for Level 4 restrictions shows the widespread community acceptance of household water efficiency and the likely long term impact this could have on water demand levels even when restrictions are eased.

Household Water Consumption per capita (kl/capita)[30]

	NSW	Vic	Qld	SA	WA	Tas	Aust.
2004/5	84	81	124	94	180	143	103
2000/01	97	97	143	110	191	125	120

Recommendation 7: That the State Government engage a full, independent and transparent analysis of the costs and benefits of the Traveston Dam proposal and the alternatives to the proposal. Such a study should include testing the assumptions used for water demand and supply for South East Queensland to 2050, and the costs and benefits of alternative demand and supply options.

3 April 2007

[28] "Dry forces city to make a tank stand" Courier Mail 30/3/2007 p.17
[29] Queensland Water Commission website
[30] ABS Water Account 2004-5 cat. No. 4610.0 p. 103