Alan Sheridan
208 Skyring Creek Road
FEDERAL, Q, 4568

2 April 2007

Committee Secretary
Senate Rural and Regional Affairs and Transport Committee
Department of the Senate
PO Box 6100
Parliament House
Canberra ACT 2600
Australia

SUBMISSION – FEDERAL SENATE INQUIRY – PROPOSED TRAVESTON CROSSING DAM

Dear Sir/Madam,

I am a professional civil engineer and a resident of the Mary Valley. I have an Honours Degree in Civil Engineering, a Master of Engineering Science Degree, Graduate Diplomas in Management Studies and Strategic Studies, have lectured at the University of NSW, have worked overseas throughout South East Asia, the South West Pacific and in Southern Africa and have managed water supply systems in the countries of Vanuatu and Papua New Guinea and in the Council's of Pine Rivers and Ipswich City.

I am absolutely convinced, beyond any doubt that there are cost effective alternatives to major dams for securing water supplies for South East Queensland. These alternatives are not dependent on decreasing and highly variable patters of rainfall and they will save the State Government hundreds of millions of dollars in both capital and ongoing operating and maintenance costs. This money can be better spent on schools, hospitals and transport related infrastructure throughout the State.

I believe that the Queensland State Government has been poorly advised by the water industry in general with regard to the current drought and the alternatives. There is either a lack of skilled and experienced people within the bureaucracy or the State Government has been ignoring their advice for many years. Given recent revelations regarding previous reports commissioned by the State Government, it seems that the latter is the case. There are innovative and smart ways of securing water for the South East corner which need to be further investigated.

In August last year the Premier of Queensland publicly stated that "I'm not doing this (ie. the Traveston Dam) because I want to be hated, but I don't know where else I can get the water we need. If someone can find another source I would like to hear about it, but I believe we have considered every other option. If there's someone out there who can magically produce water out of thin air, please get in touch".

I personally wrote a detailed letter to the Premier at that time and had the letter hand delivered by the Mayor of Noosa Council. The letter outlined a range of viable alternatives that the State Government should be implementing. I did not receive a response. I provided a subsequent letter to all Mayors in South East Queensland outlining the alternatives and received a number of supportive comments, specifically from the Mayors of the Gold Coast, Pine Rivers, Maroochy and Noosa Council's.

In summary, the proposed alternatives are as follows:

Desalination is a cost effective alternative which does not rely on rainfall and which only needs to be operated when necessary. While there are costs involved in shutting down desalination plants, these are minor in comparison to the cost of major dams. Moreover, with desalination, the water is produced where it is needed without costly pipe networks. The 45,000 ML/a desalination plant at Kwinana in Perth will produce water for about $1.17 per kilolitre (not much more than the retail cost of treated water) and a capital cost of $387 million. The Queensland State Government spent $500,000 undertaking a report on desalination sites around SEQ. This report has been kept secret. However, I understand that a good site exists on State Government land on Bribie Island. The location is close to existing water and power grids and could economically service the northern part of the greater Brisbane area with the desalination plant a Tugan serving the southern part of the greater Brisbane area.

In relation to the raising of **Borumba Dam**, we are all aware that this has been on the cards for some time and that it may well be necessary to secure long term water resources for the Sunshine Coast. It should be noted that the GHD desk top study report of identified dam and weir sites actually states that additional yield from Borumba might be possible with a higher dam wall. While the catchment area is fairly limited (460 sq km), there is no doubt that when it does rain heavily in this area, the runoff is enormous. The State Government has produced performance curves which clearly show that a 1,000,000 ML capacity dam at Borumba could have safely provided 70,000 ML/a yield for the last 50 years. A dam at Borumba could also be supplemented with water harvesting from the Mary River during times of high flows by using a system of weirs and high volume pumps.

It would seem both practical and feasible to provide for **Source Substitution** through the harvesting of existing river water supplies for potable consumption and replacing the water taken with the same quantity of highly treated recycled water. There would be no net impact in terms of river flows and in many cases, an improvement in water quality. A very similar scheme is proposed for Warragamba Dam (the main water supply for the Sydney metropolitan area), where additional water will be drawn from the dam for water supply purposes and downstream environmental flows will be maintained by using recycled water.

I attach a copy of a presentation which I recently gave to conference of Professional Engineers from throughout SEQ. I know that a lot of these people share my concerns regarding the State Government's plan. I would appreciate the opportunity to deliver that presentation to the Senate Inquiry. I also attach a copy of a report which I prepared on behalf of the community in June 2006, shortly after the announcement of the proposed dam at Traveston Crossing on the Mary River. That report remains as valid today as it was nine months ago.

I believe that I can add real value to the Senate Inquiry and would appreciate the opportunity of appearing before the inquiry and delivering the attached presentation.

Yours Sincerely,

Alan Sheridan
BE Civ (Hon), M Eng Sc, Grad Dip Mngt Studies, Grad Dip Strategic Studies,
RPEQ, CP Eng, MIE Aust, MAPWA, MIPWEA

Attachments: Power Point Presentation (March 2007) and Community Report (June 2006)

save the Mary River

SAVE THE MARY RIVER

A REPORT ON
THE QUEENSLAND STATE GOVERNMENT'S
PROPOSAL TO DAM
THE MARY RIVER AT TRAVESTON

Prepared by the Save the Mary River Coordinating Group
(A Sub-Committee of the Friends of Kandanga Inc)
www.savethemaryriver.com
5488 4800

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Executive Summary

On 27 April 2006, the State Government, without any form of consultation whatsoever, announced the construction of a mega dam on the Mary River at Traveston. No information has been made public about any planning procedures or studies which justify this decision. Prior to this announcement there was no public notification or consultation regarding this proposal and there has been no specific information provided since that time.

The proposed dam will be a social and environmental disaster. If it goes ahead it will :

- Destroy habitat for rare and threatened species (Australian Lungfish (pictured), Mary River Cod and Mary River Turtle) and other endangered ecosystems.
- Adversely impact on environmental flows along the remainder of the Mary River system, a system which discharges into the Great Sandy World Heritage area and the Great Sandy Straits Declared Ramsar wetland area.
- Destroy 76 square kilometres of prime agricultural, income producing farmland close to major population centres and force the unnegotiated relocation of hundreds of businesses and around 900 families living in the Mary Valley.

It is recommended that:

a. In the absence of any proper planning process or any form of consultation, the State Government immediately suspend any further investigation of the proposed Mary River Dam, a high cost and environmentally destructive proposal which is not necessary to meet future water supply demand in South East Queensland.

b. The State Government commence implementation of the short and medium term actions contained in the South East Queensland Regional Water Supply Strategy Stage 2 Interim Report dated January 2006.

c. If further investigations indicate a problem with supply projections based on the short and medium term actions contained in the South East Queensland Regional Water Supply Strategy Stage 2 Interim Report dated January 2006, that the Government go back to the drawing board with a proper and fully documented investigation of all available alternatives including recycling, potable rainwater tanks, no-net water impact developments, groundwater investigations, water harvesting, and other options for supplementing existing storages.

d. With regard to the possible longer term measures contained in South East Queensland Regional Water Supply Strategy Stage 2 Interim Report dated January 2006, investigation of Mary River Water Storage Improvements be removed from further consideration due to the unacceptable impact of any further water storage developments on that river system.

Lack of Defensible Planning Studies

We would expect that a major project such as this, with such an enormous impact, would surely require a decision making process which could be supported by robust and defensible planning studies. At a meeting with DNRM&W staff at the Cooloola Council chambers on 5 May 2006, the question was asked as to what alternatives were examined. The response indicated that the proposed dam was based on a "preliminary assessment" of available information and a "desk top study". It was clear from the meeting that other alternatives were not examined in any level of detail. Where is:

- The detailed options report which lists all the alternatives including a detailed cost benefit analysis of each.
- The analysis of social, environmental and economic impacts of this proposal in comparison to all the other alternatives.
- The forecast of future flows in the Mary River based on projections of rainfall, the impact of climate change and the resultant impact on downstream water entitlements.

Already Documented Strategies

Sunshine Coast and Mary Valley Water Supply Sources Study, 1994

It seems that the most recent planning study regarding Mary River Valley water supply sources was published in a report titled "An Appraisal Study of Water Supply Sources for the Sunshine Coast and Mary Valley, December 1994". Table 8.2 of that report regarding the Traveston site advised that the "Damsite (is) considered unsuitable because of high capital cost, inundation of prime agricultural land and displacement of rural population". The site was not chosen for further investigation. Section 14 of that report recommended a preferred strategy for future water supplies in this region. The preferred strategy did not include the proposed dam on the Mary River, but it did include the progressive raising of Borumba Dam, a regulating weir at Moy Pocket, raising of Lenthall's Dam on the Burrum River, reduction of demand through use of urban rainwater tanks and treated wastewater and a longer term strategy for a dam at Amamoor. Land has been procured around Borumba Dam and Amamoor, presumably as a result of the 1994 Water Supply Sources Report. The State Government should provide information as to why this strategy was not implemented in full and why we had to wait until there was a water supply crisis before deciding that action was necessary and then making a decision which was contrary to previous studies and land resumption actions already taken.

Mary Basin Draft Water Resource Plan

The Queensland State Government, under its own legislation (Water Act 2000), has produced a Draft Water Resource Plan for the Mary River Basin. The plan has been under development since 2002. The draft plan was finalised in February 2006 with no mention of "mega dams". Indeed, such proposals were not raised during that process, although they appear to have been cleverly disguised in the form of a "strategic reserve". Community and Local Government representatives involved with the development of the Draft Water Resource Plan are quite clear in their view that the reference to "strategic reserve" (which is not quantified in the Draft Plan) was in no way thought to relate to major dam structures and that if this was the intention, the process associated with developing the plan has been grossly misleading. The State Government's announcement of this dam raises serious concerns about the process of developing the Draft Water Resource Plan and the community consultation that went with it.

South East Queensland Regional Water Supply Strategy Stage 2 Interim Report

The South East Queensland Regional Water Supply Strategy Interim Report released in January 2006 lists the short, medium and longer term initiatives aimed at providing water for the South East Queensland Region. The short and medium term options (out to 2020) include groundwater supplies, desalination, the raising of Hinze Dam, use of recycled water, the recommissioning of Ewen Maddock Dam and the construction of a regulating weir on the Mary River to improve security of supply for Cooloola and Noosa Shires. The report indicates that the proposed weir would act as a regulating structure for Borumba Dam. The report lists "Mary River water storage improvements" as a possible longer term measure (beyond 2021). It does not refer to major dams on the Mary River.

Under a planned target demand of 270 litres per person per day (attached Graph 3 refers), the implementation of all short and medium term actions detailed in the report would safely meet demand projections over the medium to long term (ie. well beyond 2020). Improved technologies, recycling, water sensitive urban design, appropriate growth planning and further demand restraint would almost certainly extend the life of existing water supply sources even further.

As a suggestion, the Stage 2 Interim Report could also include additional options as listed in the 1994 water supply sources study, at least for further investigation. The Stage 2 Interim Report does not even mention the raising of Borumba Dam, for which land has already been purchased.

It seems like a perfectly legitimate question to ask exactly what changed between January 2006 and April 2006, which now suddenly requires the construction of a mega dam.

Other State Actions

Over the past decade, almost $40 million has been spent acquiring some 12,000 hectares of land for four dam proposals – Wyaralong, Glendower, Amamoor Creek and Borumba Dam Stage 3. It would seem reasonable to ask why none of these projects has been progressed and why we have had to wait for a critical water shortage to come up with a totally new and previously unsupported dam proposal.

We would also ask a seemingly legitimate question as to why the Queensland Office of Urban Management has developed a plan for growth within South East Queensland which cannot be supported by the available resources within that region. Optimum population levels should be aligned to the ability of the environment to provide for essential services. The environment should not be made to suffer because of irresponsible and unsustainable planning outcomes.

Environmental Impact

General

The negative environmental and economic impacts for the Mary River catchment and downstream receiving waters in the Great Sandy World Heritage Area are significant and unacceptable.† Large scale water infrastructure will not only permanently affect the Mary River catchment but will degrade the fisheries of the Great Sandy World Heritage Area and will impact on the Great Sandy Straits Declared Ramsar wetland. There will also be significant impacts on aquatic and terrestrial animals that live along the Mary River. Reduced flows will affect the Mary River Cod (pictured) and Lungfish spawning areas, and the site at Traveston will destroy key primary habitat of the Mary River Cod, the Mary River Turtle and the Australian Lungfish. Further specific information is contained in the attached information sheet prepared by the Mary River Catchment Coordinating Committee.

Declared Ramsar Wetlands

The Mary Basin discharges into the Great Sandy Straits Declared Ramsar wetland area. Environmental flows into the Great Sandy Straits Declared Ramsar wetland area will be impacted, in terms of both quality and quantity, by the construction of a dam on the Mary River. The 1971 Convention on Wetlands (Ramsar, Iran, 1971) is an International Treaty that aims to halt the worldwide loss of wetlands and to conserve those that remain through wise use and management. Australia is a signatory to this treaty which is legally binding on the Commonwealth. A Ramsar declaration means that the wetland is of international significance and that its ecological character is under threat. Under the Commonwealth's Environment Protection and Biodiversity Conservation Act, Ramsar wetlands are recognised as a matter of national environmental significance and any action that has, will have, or is likely to have a significant impact on the ecological character of a Ramsar wetland cannot proceed without approval from the Commonwealth Environment Minister. To obtain approval, the action must undergo a rigorous environmental assessment and approval process.

Rare and Endangered Species

The Mary River contains a number of rare and threatened species. Specifically, under the IUCN (International Union for the Conservation of Nature and Natural Resources), the following species are present in the Mary River System:

- Mary River Cod – critically endangered
- Mary River Turtle – endangered (pictured)

Under the IUCN system, critically endangered species are those facing an extremely high risk of extinction in the wild in the immediate future. Habitat destruction and associated degradation are the most severe threat to freshwater species. The proposed dam would destroy habitat and spawning/breeding areas for the Mary River Cod.

Under the Environment Protection and Biodiversity Conservation Act 1999, the following species are present in the Mary River System:

- Mary River Cod – endangered
- Mary River Turtle – endangered (pictured)
- Queensland Lungfish – vulnerable

Under the Queensland Nature Conservation Act 1992, the following species are present in the Mary River System:

- Giant Barred Frog – endangered (pictured)
- Mary River Turtle – endangered
- Cascade Tree Frog – endangered
- Coxens Fig Parrot – endangered
- Tusked Frog – vulnerable
- Honey blue-eye – vulnerable
- Richmond Birdwing Butterfly – vulnerable
- Illidges ant-blue butterfly – vulnerable

The Queensland lungfish, in particular, is a living fossil which existed alongside the dinosaurs. Members of this group have been around for 300 million years. Recent research indicates that this creature is a crucial link in the evolutionary chain that saw fish crawl out of the water to become land dwelling back-boned animals. Its breeding habitat is disappearing and it is feared that the Queensland lungfish will become extinct if breeding habitat is not preserved. The Mary and Burnett River systems are the only natural habitats in the world for this fish.

Endangered Regional Ecosystems

The location of the proposed dam also contains areas of Endangered Regional Ecosystem 12.3.1, notophyll rainforest on alluvial plains which is protected under the Queensland Vegetation Management Act, 1999. The Act applies to freehold land and its purpose is to preserve remnant endangered regional ecosystems, maintain or increase biodiversity, maintain ecological processes and allow for ecologically sustainable use of land. These ecosystems will be destroyed if the proposed dam goes ahead.

Application of the Federal EPBC Act

Advice from the Department of Heritage and Environment is that, under the Environment Protection and Biodiversity Conservation Act, the dam proposal will need to be referred to the Federal Government for a determination as to whether significant impacts on matters of National Environmental Significance are likely, and formal assessment and approval is needed by the Australian Government. Once received, the referral will be placed on the Department's web site for public comment as to the likelihood of significant impacts. A decision will then be made as to the role of the Australian Government in the environmental approvals process. As there are a number of endangered and vulnerable species which occur in the Mary River and a declared Ramsar Wetland which will be affected by the proposed dam, the proposal would almost certainly require approval by the Federal Government under the EPBC Act. The only provision for exemption under the EPBC Act would be for the Commonwealth Environment Minister to determine that an exemption was in the national interest, which it clearly is not.

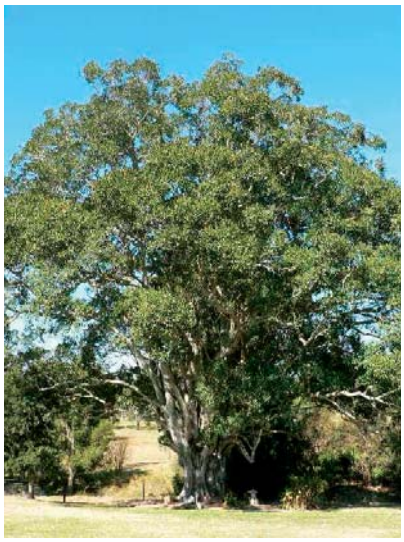
State Legislation

The Water Act 2000 is State Government Legislation which provides for the sustainable management of water and other resources. The Act makes specific reference to sustainable management and the principles of ecologically sustainable development, specifically (quoted directly from the Act):

- protecting the biological diversity and health of natural ecosystems;
- maintaining and improving the quality of naturally occurring water;
- protecting water, watercourses, lakes, springs, etc., from degradation and if practicable, reversing degradation that has occurred;
- encouraging the community to take an active part in planning the allocation and management of water;
- decision making processes which integrate both long term and short term environmental, social and equitable considerations;
- the present generation should ensure the productivity of the environment is maintained or enhanced for the benefit of future generations;
- the conservation of biological diversity and ecological integrity as a fundamental consideration in the decision making process.

It is abundantly clear that the State Government could achieve none of these outcomes with the proposed Mary River Dam. At a meeting at the Cooloola Council Chambers on 5 May 2006, senior officers from the Department of Natural Resources, Mines and Water advised that the dam would be progressed under the Coordinator General's powers rather than the Water Act 2000. The Coordinator General acts under the State Development and Public Works Organisation Act, 1971.

In relation to the 1971 State Development Act, which could only be described as draconian in relation to its consideration for the environment, the proposed Mary River Dam would have to be declared as a significant project for which a full public EIS is required. It is almost incomprehensible to envisage a situation where the Coordinator General could make a determination that such action was not necessary, but such an outcome is in fact provided for in the Act. Notwithstanding, the 1971 State Development Act cannot over-ride the legislative requirement for referral to the Federal Government under the EPBC Act. Section 109 of the Australian Constitution states that "when a law of a State is inconsistent with a law of the Commonwealth, the latter shall prevail, and the former shall, to the extent of the inconsistency, be invalid". The legally binding provisions in relation to environmental legislation contained within the EPBC Act clearly take precedence over the environmental provisions contained within the 1971 State Development Act.



Cultural Heritage Impact

Many artefacts and archaeologically significant places have been identified throughout the Mary River Basin. Archaeological sites containing trees scarred by removal of bark for canoes, shelters, food and water containers, axe grinding grooves, middens, rock shelters, bora rings, paintings, burial sites and artefact scatters have been identified. Specifically, a site of archaeological significance is located within Yabba Creek, part of which is affected by the proposed dam. The EPA maintains a register of archaeological sites (thought to number 138), however information regarding many of the sites remains privileged. Source – DNR&M Draft Water Resource Plan, November 2005. Further investigation of sites of cultural heritage significance and the potential impact of the proposed dam on those sites would be necessary.

Water in particular, is an important resource of Indigenous people and is often fundamental to traditional connections to land, as a local economic resource and by providing for spiritual, cultural and recreational needs (Source – DNR&M Draft Water Resource Plan, November 2005). Rivers and creeks are often central to Indigenous people's traditional country. Physical modification, particularly of the scale proposed by a mega-dam, would seem to have significant cultural heritage implications.

Economic Impact

The site of the proposed dam covers 76 square kilometres of the most fertile agricultural land in Queensland. The dairy and cattle industries are the mainstay of the local economy. There are 18 major dairy farms in the affected area, each producing an average of 1.5 million litres of milk per year. This generates $12 million in milk sales annually to dairy framers. The accepted industry multiplier for the dairy industry is 3.5, making the total value of milk production $42m annually. The area provides 7% of the total milk production in Queensland and dairy farms in the Mary Valley are twice as productive as equivalent dairy farms elsewhere. The industry will be decimated if the proposed dam goes ahead. Similar quality land is not available elsewhere and most businesses which rely on agriculture will simply be out of business altogether.

Downstream agricultural industries which rely on water from the Mary River are almost certain to be adversely affected. It has been estimated that $38 million of agricultural production would be impacted through the loss of downstream water rights and other impacts on water quality such as increased salinity.

The proposed dam on the Mary River will result in a permanent reduction in fisheries productivity and will have serious implications on fishing and tourism industries in the Great Sandy Region. Fraser Island and the Great Sandy World Heritage Area are recognised as a premier South East Queensland tourist destination and some of the best recreational fishing destinations on the Australian east coast.

The DNR&M Technical Advisory Panel Report (set up by the Government's own Department of Natural Resources and Mines) on Environmental Flows in the Mary Basin – the best available science currently available – states "A reduction in fisheries productivity is implied by the reductions in total flow volumes and high volumes in Scenario Case R." (Scenario Case R is new large scale water infrastructure). Permanent reduction in fisheries productivity will have serious implications on fishing and tourism industries in the Great Sandy Region.

The Mary River is an icon of the tourism and recreational fishing industries. Tourism related industries are an important mainstay of the regional economy with over 200,000 visitors annually to Fraser Island and overnight visitor expenditure in the Hervey Bay/Maryborough Region totalling $366 million (DNR&M 2003). The proposed dam will have a detrimental impact on this industry.

South East Queenslanders also recognise the significance of the Great Sandy World Heritage Area and many have a strong affinity with the recreational and tourism opportunities the region offers. Approximately one-third of the residents of the Great Sandy Region are recreational fishers and 100,000 non-residents fish the region annually, possibly contributing up to $100 million to the regional economy (DNR&M 2003).

Contaminated Sites

The economy of the Mary Valley is based primarily on dairy and cattle farming industries. It has been conservatively estimated that between 100 and 200 arsenic cattle dips are littered throughout the Mary Valley in the location of the dam site and in upstream catchments. Many of the old dips have been covered over and in many cases the location of these facilities would be difficult to determine with any degree of accuracy. It was standard practice with the use of arsenic cattle dips for the arsenic laced water and sludge to be pumped out over the area surrounding the dip. The contaminated areas therefore cover a much larger area than the actual dip itself.

Arsenic is odorless and tasteless and enters drinking water supplies from natural deposits in the earth or from agricultural and industrial practices. Arsenic has been linked to cancer of the bladder, lungs, skin, kidney, nasal passages, liver and prostate. Non-cancer effects can include thickening and discoloration of the skin, stomach pain, nausea, vomiting, diarrhoea, numbness in hands and feet, partial paralysis and blindness.

The presence of these facilities within the dam and the broader catchment raises serious questions about the suitability of this proposal to provide safe drinking water supplies.

Salinity

In accordance with the DNR&M February 2003 Salinity Hazard (Potential for Salt Mobilisation) Map, the area of the proposed dam is located within an area of Moderate to High Salinity Hazard. What this essentially means is that these areas have the potential to develop salinity in the longer term unless preventative measures are identified. Salinity becomes a problem when salt levels become so high that land and water use is limited.

A letter from the Minister for Natural Resources to landowners on 20 February 2003 advised that "the Queensland Government is committed to ensuring that the salinity hazard identified in the mapping does not become a reality". Interestingly enough, the question and answer sheet provided with the letter advised that potential methods of preventing salinity included avoiding building dam sites where the water table is high and retaining and regenerating native vegetation. The Burnett Mary Regional Group advises that two major rivercare and restoration projects in the Noosa and Cooloola Shires totalling more that $414,000 in investment have already commenced.

There have already been serious impacts in terms of salinity from previous dams and barrages in the Mary catchment. The commissioning of Borumba Dam increased salinity in downstream waters by 8% as a result of the reduction in downstream flows. The construction of the Mary River Barrage located 56 km upstream of Great Sandy Straits, increased salinity in downstream waters by a further 17%. River water quality in the lower reaches of the Mary River will be severely impacted by the proposed dam.

Conclusion

While we all acknowledge the pressures of growth within South East Queensland, the situation we now find ourselves in has been bought about by a series of systematic failures by Government to adequately plan for a sustainable level of development within South East Queensland. The problem the Government now finds itself in is a combination of mother-nature (lack of rainfall), failure to implement sustainable development plans and failure to progressively deliver demand strategies and infrastructure to support those plans.

In relation to the Mary Valley and the Sunshine Coast, the Queensland Government had a plan in 1994 and failed to act on it. The State Government's South East Queensland Regional Water Supply Strategy Stage 2 Interim Report dated January 2006 would safely meet demand projections over the medium to long term (ie. well beyond 2020).

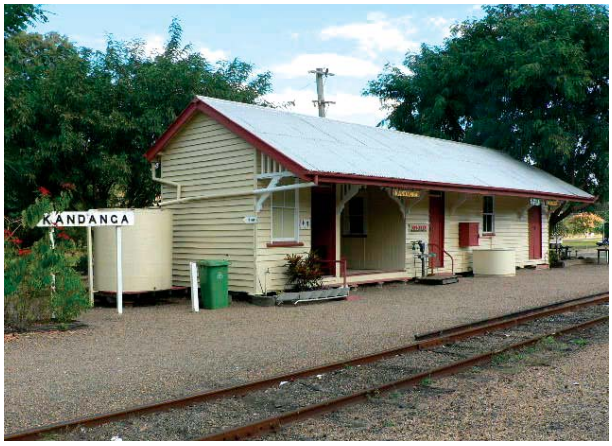
Improved technologies, recycling, water sensitive urban design, appropriate growth planning and further demand restraint would almost certainly extend the life of existing water supply sources even further.

What has changed over the past three months since the January 2006 report. It has not rained! The proposed Mary River Dam is a knee jerk reaction to the current situation at a huge and irreversible cost to the environment, to the people who live and work in this beautiful valley and to the economy of the Sunshine Coast Region.

Specific Questions

- Precisely, what are the problems that the Government is trying to solve?
- What non-dam alternatives have been considered?
- What are the reasons why each of the non-dam alternatives or a combination of the non-dam alternatives will not solve the problems?
- Why has the State Government failed to plan for the progressive delivery of infrastructure as foreshadowed in the 1994 Water Supply Sources report?
- Why has the State Government spent $40 million acquiring land for four dam sites (two in the Mary Valley at Borumba and Amamoor) over the past decade, but has so far failed to deliver the infrastructure associated with these land acquisitions?
- Why did the State Government develop a Water Supply Strategy in January 2006, which included a range of infrastructure improvements throughout the region, which will meet future demand without the need for any new dams, but has seemingly dumped all of this in favour of a major dam?

- Having concluded that solving the problem requires the building of a dam, what alternative dam projects have been considered?
- What are the key findings (including the relevant facts and data) regarding all alternatives including the Traveston Crossing option?
- What are the reasons why the Traveston Crossing option has been selected over the alternatives?
- Why has the State Government allowed the Office of Urban Management to prepare a plan for future development in South East Queensland which cannot be supported by the available resources within that region?
- Why are the people of Queensland being asked to pay for the delivery of major water supply infrastructure, when it is future development that is driving the need for that infrastructure?
- When will the State Government be referring the proposal to the Federal Government for approval under the EPBC Act as a project of National Environmental Significance?



Recommendation

It is recommended that:

a. In the absence of any proper planning process or any form of consultation, the State Government immediately suspend any further investigation of the proposed Mary River Dam, a high cost and environmentally destructive proposal which is not necessary to meet future water supply demand in South East Queensland.

b. The State Government commence implementation of the short and medium term actions contained in the South East Queensland Regional Water Supply Strategy Stage 2 Interim Report dated January 2006.

c. If further investigations indicate a problem with supply projections based on the short and medium term actions contained in the South East Queensland Regional Water Supply Strategy Stage 2 Interim Report dated January 2006, that the Government go back to the drawing board with a proper and fully documented investigation of all available alternatives including recycling, potable rainwater tanks, no-net water impact developments, groundwater investigations, water harvesting, and other options for supplementing existing storages.

d. With regard to the possible longer term measures contained in the South East Queensland Regional Water Supply Strategy Stage 2 Interim Report dated January 2006, investigation of Mary River Water Storage Improvements be removed from further consideration due to the unacceptable impact of any further water storage developments on that river system.

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Attachment A - Threatened Species Poster

Attachment B - SEQRWSS Stage 2 Demand/Supply Graph

Attachment C - Submission from Mary River Catchment Co-ordinating Committee

Threatened Fauna of the Mary River Catchment

Take steps to protect waterway fauna

Photo courtesy of John Cann

© Queensland Museum

Water mouse
Xeromys myoides
Rare (NCA 1994)
Habitat: *Tidal zones. Requires mangroves in which to feed and nearby reedbeds and salt marshes above high tide for burrows.*
Threats: *Coastal development, predation by domestic pets and feral animals.*

Photo - Eva Ford, MRCCC

Giant barred- frog
Mixophyes iteratus
Endangered (NCA 1994)
Habitat: *Rocky and deep, slow-moving streams with good riparian vegetation.*
Threats: *Tree clearing, fungal disease*

Photo – Eva Ford, MRCCC

Cascade treefrog
Litoria pearsoniana
Endangered (NCA 1994)
Habitat: *Found in low vegetation within 1 –2 m of wet forest streams in ranges of south-east Queensland.*
Threats: *Fungal disease, loss of riparian vegetation.*

Don't pollute waterways

Revegetate with local native plants

Mary River turtle
Elusor macrurus
Endangered (NCA 1994)
Habitat: *Occurs only in the Mary River catchment, in deep water holes and undisturbed slow flowing sections with partially submerged rocks and logs on which to bask.*
Threats: *Loss of riparian vegetation, decreased water quality, changes in water flow, erosion and siltation,disturbance of eggs.*

Photo courtesy of Kathie Atkinson

Don't release non-local fauna species in waterways

Control weeds - early is best

Image courtesy of Sally Elmer

Queensland lungfish
Neoceratodus forsteri
Vulnerable (EPBC 1999)
Habitat: *Endemic to the Mary and Burnett river systems only. Slow flowing and still water, prefers deep pools with riparian vegetation.*
Threats: *Removal of riparian vegetation, impoundments, siltation.*

Photo – Eva Ford, MRCCC

Waterways are sensitive to impacts by livestock

Coxen's fig-parrot
Cyclopsitta diopthalma coxeni
Endangered (NCA 1994)
Habitat: *Various forest types with an abundance of fig trees.*
Threats: *Tree clearing, habitat fragmentation*

Tusked frog
Adelotus brevis
Vulnerable (NCA 1994)
Habitat: *Rainforests, dry forests near streams and ponds, farming areas where creek banks are free from grazing*
Threats: *Tree clearing, fungal diseases.*

Photo courtesy of Gunther Schmida

Leave near-stream vegetation intact

Barriers to flow are barriers to fish

Richmond birdwing butterfly
Ornithoptera richmondia
Vulnerable (NCA 1994)
Habitat: *Rainforest environments containing* Pararistolochia *vines on which its eggs are laid.*
Threats: *Clearing of coastal rainforests where the exotic weed Dutchman's pipe is mistakenly used to lay eggs on. Toxins in the plant kill young caterpillars.*

© Queensland Museum

Honey blue-eye
Pseudomugil mellis
Vulnerable (NCA 1994)
Habitat: *Found only in waterways with soft, tannin-stained acidic water, less than a metre deep, a sandy bottom, sedged edges and no flow.*
Threats: *Land clearing and coastal development have reduced suitable habitats.*

Photo courtesy of Gunther Schmida

Mary River cod
Maccullochella peelii mariensis
Endangered (EPBC 1999)
Habitat: *Deep slow flowing pools with overhanging vegetation or rocks.*
Threats: *Removal of logs from waterways, siltation and illegal fishing.*

Photo courtesy of Chris Corben

Giant spiny crayfish
Euastacus hystricosus
Vulnerable (IUCN 2000)
Habitat: *Upland rainforest and wet sclerophyll streams.*
Threats: *Habitat loss, feral animal disturbances.*

© Queensland Museum

Illidge's ant-blue butterfly
Acrodipsas illidgei
Vulnerable (NCA 1994)
Habitat: *Mostly Grey mangroves along coast between Mary and Brunswick River estuaries.*
Threats: *Mangrove loss due to coastal development.*

MARY RIVER CATCHMENT COORDINATING COMMITTEE

This poster developed by the Mary River Catchment Coordinating Committee with support from:
For information contact MRCCC, QPWS or your local Landcare group.

NCA 1994- *Queensland Nature Conservation (Wildlife) Regulation 1994.*
EPBC 1999- *Environmental Protection and Biodiversity Conservation Act 1999.*
IUCN 2000 – International Union of Conservation of Nature and Natural Resources (Red list)

Images of the Birdwing Butterfly, Water Mouse and Illedge's Ant Blue Butterfly courtesy of the Queensland Museum ©

Queensland Government Natural Resources and Mines

Healthy Farmers

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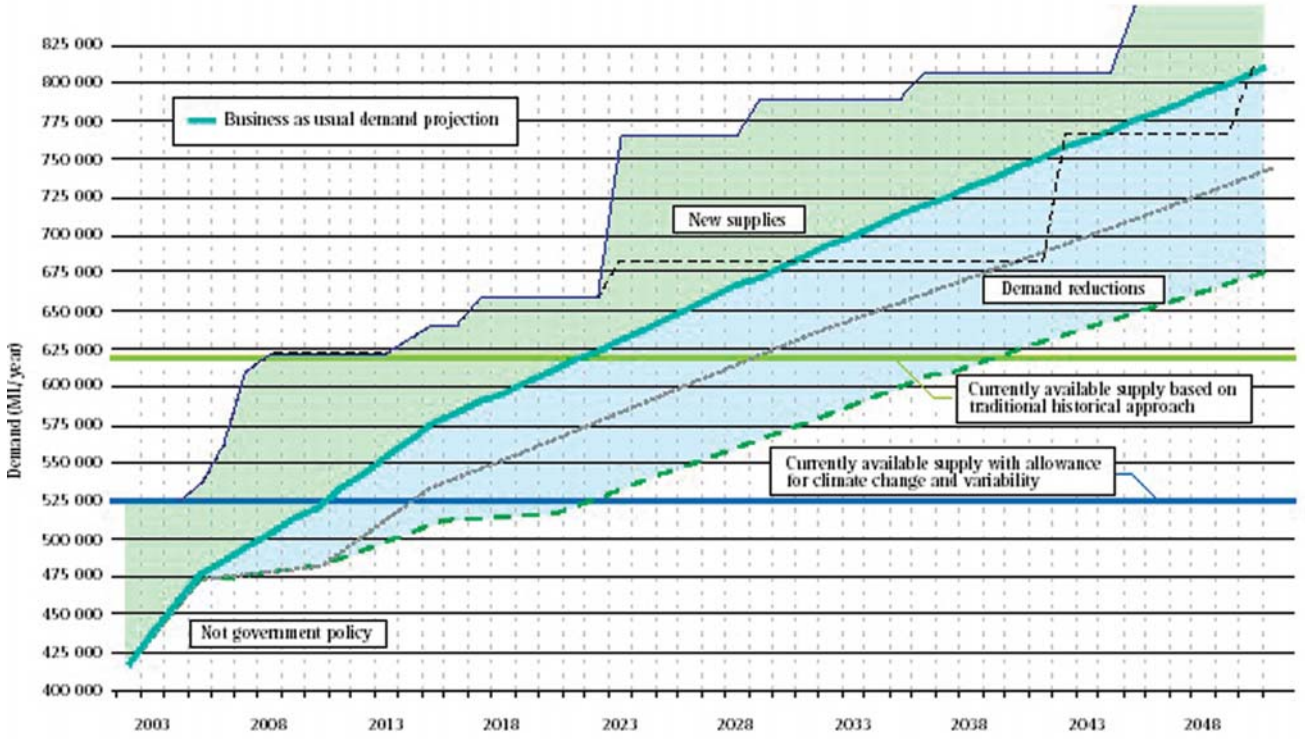
NOOSA COUNCIL

Graph 3—Possible infrastructure program to meet future demand



'Business as usual' demand projection
Demand projections using SEQ Regional Plan target demand of 270 litres/person/day in 2010
Demand projections using SEQ Regional Plan target demand of 230 litres/person/day in 2020
Total supply to meet 'Business as usual' demand following new infrastructure provision
Future infrastructure can be deferred by demand reductions

Possible infrastructure program subject to SEQ Regional Water Supply Strategy

Short-term projects (2005–2009)
Recommissioning of Lake Manchester and Enoggera Dam, recycling to industry, optimisation of intercatchment water distribution, Cedar Grove Weir, minor aquifers, desalination plant (subject to further investigation), Mary River Weir.

Medium-term projects (2010–2020)
Subject to investigation – Raise Hinze Dam, construct Wyaralong Dam, recommission Ewan Maddock Dam, and upgrade South Maroochy supply system.

Possible longer-term measures (2021–2050)
Pending investigation – construct Glendower Dam and Mary River water storage improvements, augment desalination capacity and recycling of water, provide additional mainland groundwater supplies, and raise Wivenhoe Dam.

All surface water yields have been reduced by 15 per cent as an allowance for contingency purposes. Rural water supplies are still under investigation.

Source: SEQRWSS Stage 2 Interim Report, January 2006

How the Proposed Traveston Dam on the Mary River will affect our Endangered (EPBC Act) Aquatic Species

The Mary River Catchment is home to several rare and threatened freshwater aquatic species. The recently proposed dam at Traveston on the main trunk of the Mary River will drastically affect four of these very important species, the Mary River Cod (*Maccullochella peelii mariensis* - Endangered under the EPBC Act 1999), the Mary River Turtle (*Elusor macrurus* - Endangered EPBC), the Queensland Lungfish (*Neoceratodus forsteri* - Vulnerable EPBC) and the Giant barred frog (Mixophyes iteratus - Endangered EPBC). The Mary River Cod and the Mary River Turtle, occur naturally in the wild nowhere else in the world. The Queensland Lungfish, now occurs naturally only in the Burnett and Mary river systems. This article will briefly look at the threats the proposed large dam at Traveston may have on these already threatened species that live along the Mary River and its tributaries.

Upstream Effects: -

Fish Passage:

Although the knowledge and technology now exists to build suitable "fish transfer devices" (fish ladders and fish lifts), it is widely acknowledged that they are very difficult and expensive to construct for barriers with high dam walls (such as the proposed dam at Traveston). It is also recognised that, even with a fish transfer device, fish passage, genetic distribution and migration for spawning will never be returned to its natural state after the construction of a dam. This impediment could severely impact on the Mary River Cod and Queensland Lungfish (both of which are know to migrate over long distances, especially during spawning times). Recent electronic tracking studies have established that turtles do not enter fish transfer devices. This dam would also impede the flow of genetic material between upstream and downstream populations of the Giant barred frog as it will disappear from most of the impoundment perimeter.

Flooding of Existing Habitat:

The proposed dam site contains known habitat for the nationally endangered Mary River Cod, Queensland Lungfish and Mary River Turtle. Although these species can survive within impounded areas, they cannot breed in these impounded areas. The Mary River Cod relies on deep, cool, shaded pools containing large woody debris (snags) for it to successfully breed. The Traveston dam will flood several of these known habitats on the Mary River and will not provide any similar habitat once completed. Queensland Lungfish requires shallow flowing riffles and glides amongst dense beds of submerged aquatic plants to lay its eggs on. Again suitable lungfish spawning habitat will not exist within the new dam. The Mary River Turtle utilises only sandy river banks to lay its eggs. The proposed dam will flood several known locations of this rare and critical nesting habitat.

It is also believed that poor water quality due to a process known to occur in dams known as stratification (where deep, cooler waters, with little dissolved oxygen turn over when surface waters heat up) will also have dire effects on any Mary River Cod, Mary River Turtle or Queensland Lungfish that may survive within the dammed area. The Giant barred frog is found in the tributaries of the Mary River where undercut banks, vegetation and deep pools are present. As the lower sections of many tributaries will be flooded riparian vegetation will be lost. Undercut banks are essential for egg deposition and these too will be lost. The frogs will disappear from the impounded areas.

Aquatic Weed and Algal Growth:

The Traveston dam site will create a large expanse of relatively shallow still water, where the lack of flow, increased water temperature and stratification will create optimal growing conditions for aquatic weeds

and algae. Excessive aquatic weed and algal growth create very unfavourable conditions for aquatic life (such as the Mary Cod, Lungfish and Mary River Turtle) in still water bodies by severely depleting the dissolved oxygen levels within the water. There are many sources of aquatic weeds already in the Mary Catchment (for example Cabomba, a weed of national significance, in nearby Lake Macdonald) that will be very easily spread to the proposed dam. Once established in the dam these aquatic weeds and associated problems will be very easily transported downstream.

Exotic Fish Species:

It is well documented that an impounded dam environment is far more suited to many exotic fish species, such as Carp and Talapia. The Mary River is one of the few remaining rivers in South East Queensland without an infestation of large exotic fish. If exotic fish species entered the proposed dam, they could be expected to proliferate in a short period of time and out compete any remaining native fish species (such as the Mary River Cod and Queensland Lungfish). Some exotic fish are known to predate on frog eggs and tadpoles and would add to the pressures on Giant barred frog populations living along tributaries of the Mary River. There would be a high risk of exotic fish species spreading both up and downstream of the proposed impounded area.

Downstream Effects: -

Reduction in Flow:

It is estimated that the mean annual flow of the Mary River will be reduced by up to 20 percent as a result of the proposed dam. There are studies that have directly linked the decline in the health and productivity of fish species to a reduction in flow volumes. Reduced flows would negatively effect populations of the Mary River Cod and Queensland Lungfish and other native aquatic species.

Loss of Riffles and Pools:

The combined effect the proposed dam will have of reduced mean annual flow and the loss of channel forming high flows will dramatically change the shape of the Mary River downstream of the dam. The major impact expected from the change in flows will be the loss of the riffles (shallow water rapids) and pools along the Mary River. Riffles and pools are essential habitat for the Mary River Cod and Queensland Lungfish, with the Cod relying on deep shaded pools to breed and spawn in and the Lungfish needing riffles with aquatic plants to lay their eggs on. Riffles also provide the river with dissolved oxygen through aeration of the water. A loss of riffles will mean a reduction in the dissolved oxygen levels directly affecting the Mary River Cod, Queensland Lungfish and Mary River Turtle. Riffles are also very important breeding areas and habitat for many species of macroinvertebrates (waterbugs), which are a very important food source for the Mary River Cod, Queensland Lungfish and Mary River Turtle.

Channel Contraction:

The lack of high flows that will result from the proposed dam, will also result in channel contraction and bed scouring downstream of the dam. As the channel contracts and the bed deepens, vegetation will likely begin to encroach further towards the river. The Mary River Turtle uses the sandy banks of the Mary River to lay its eggs and, as the vegetation encroaches into the contracting river channel, these important sandy banks will be lost to the Mary River turtle, making reproduction impossible.

Loss of Floodplain Connectivity:

The decrease in high flows downstream of the proposed dam will mean less events where the floodwaters breach the high banks of the Mary River. The breaching of these high banks is very important to many aquatic species that rely on an interaction between the river waters and the water of off-stream wetlands.

Loss of Epiphytic Algae and Phytoplankton:

The changes in flow caused by the proposed dam, especially release of water during normally low flow periods, will cause flushing of the natural epiphytic (attached) algae and phytoplankton that are an essential component of the food chain and important for juvenile Mary River Cod and Queensland Lungfish.

Sedimentation During Construction:

The construction of the proposed dam will undoubtedly cause a large increase in sediment entering the Mary River. This will increase the river's turbidity downstream of the proposed dam site, and directly affect the health of the Mary River Cod, Queensland Lungfish and Mary River Turtle, through decreased water quality, decreased native submerged aquatic plant growth and infilling of habitat pools.

Decrease in Large Woody Debris:

The proposed dam will create a barrier to the transport of large woody debris downstream of the dam. Large woody debris is essential for the spawning and refuge of the Mary River Cod and habitat for the Queensland Lungfish and Mary River Turtle.

Release of Cold Water:

If water releases from the proposed dam are not managed correctly and multi-levelled releases are not incorporated into dam operations there will be impacts on the Mary Cod, Queensland Lungfish and Mary River Turtle through thermal pollution. Water is often released from the bottom of a dam, where the water has a much lower temperature. Many studies have shown that cold water releases can be detrimental to many aquatic species spawning and life cycles (such as the Mary River Cod and Queensland Lungfish) and disrupt the availability of food throughout the food chain.

Decreased Riparian Seed Dispersal:

The reduction in flows caused by the proposed dam may also decrease the natural ability of the Mary River to disperse very important creek-side (riparian) tree species (such as the Weeping Lilly Pilly). These tree species are essential in maintaining cool water temperatures and providing large woody debris essential habitat elements for the Mary River Cod.

Tributary Channel Incision:

It is probable that the decreased flows caused by the proposed dam will cause channel incision (or stream bed erosion) as the normal flow of the tributaries enter the lower flows of the Mary River. Channel incision of the tributaries entering the Mary River will alter the habitats of the Mary River Cod, Mary River Turtle and Queensland Lungfish within these tributaries.

Increased Aquatic Weeds and Algal Growth:

The stable base flows and reduced incidence of flood flow created by the proposed dams will create far more favourable conditions for aquatic weeds invasions and algal growth. As already mentioned, excessive aquatic weeds and algal growth create very unfavourable conditions for aquatic life (such as the Mary Cod, Lungfish and Mary River Turtle) in Stillwater bodies by severely depleting the dissolved oxygen levels within the water. With a very high likelihood that aquatic weeds and algal growth will become a problem in the impounded water above the dam wall, it is likely that the problems will be transferred downstream.

Mortality from Spillway:

Sudden falls in water levels, caused by dam operation procedures, can cause fish stranding on and below spillways. There are also many reported cases of fish and turtles dying after being washed over dam spillways during high flows. The Mary River Cod, Queensland Lungfish and Mary River Turtle are very susceptible to this threat.

save the Mary River