

## **THE QUEENSLAND GOVERNMENT PROPOSAL TO DAM THE MARY RIVER IS SERIOUSLY FLAWED** *It must be abandoned in favor of less destructive, more economical and more reliable water supply options for South East Queensland.*

### **POOR CHOICE OF DAM SITE**

The proposed dam would not be located in mountainous terrain with a pristine water catchment and solid rock foundations but rather, mid stream in a river system and on an alluvial flood plain, obviously a most unsuitable location for a dam. (Note 1)

### **INTER BASIN TRANSFER OF WATER IS COMPARATIVELY HIGH RISK**

The proposed damming of the Mary River is to facilitate an inter basin transfer of water; a political decision designed to meet the escalating water demands in South East Queensland. In this case the Mary Basin is the donor and the Moreton Basin is the recipient. Due to the higher environmental, economic and social costs, inter basin transfers should be only considered as the option of last choice. (Note 2)

### **SCIENTIFIC RISK ANALYSIS OF EXTINCTIONS HAS NOT BEEN CARRIED OUT**

The proposal poses a significant risk to the survival of a number of unique species of global scientific importance. The EIS fails to quantify the level of risk posed or the likely effectiveness of the mitigation strategies. (Note 3)

### **END OF SYSTEM IMPACTS HAVE NOT BEEN CONSIDERED**

The proponent has failed to demonstrate that the RAMSAR wetlands of the Great Sandy Strait, Hervey Bay and Fraser Island would not be adversely affected by the proposal. (Note 4)

### **2006-7 SIMULATED PERFORMANCE HIGHLIGHTS MAJOR DRY YEARS PROBLEM**

If the dam had operated as planned during the 2006/2007 water year it would have reduced the total flows from the main stream of the Mary to the Great Sandy Strait to less than 25% of the natural state. (Note 5)

### **UNPROVEN FISH TRANSFER DEVICES ARE PROPOSED**

Fishways for the passage of Lungfish constructed on a number of water infrastructures in Queensland have not been proven to be effective and to date, no turtle ramps have ever been constructed. Impractical "catch and carry" methods as proposed in the EIS and research centres are not mitigation strategies. (Note 6)

### **EMISSIONS & ENERGY COSTS ARE UNDERSTATED**

The proposal would result in a huge and unacceptable energy and green house gas cost of treating low quality water and pumping it long distances to its end use. The financial, energy, and greenhouse gas impacts of pumping water from the dam site to Brisbane via the Northern Pipeline Inter connector are significant and have not been considered in the EIS.

### **GHG & OTHER SERIOUS EMISSIONS WILL OCCUR**

Recent work done by researchers from Brazil's National Institute for Space Research (INPE) estimate that dams in general are serious emitters of methane gas and that emissions from warm tropical dams are one or more orders of magnitude greater than those elsewhere. Water stored in the proposed dam will suffer high residence times, low oxygen and high nutrient loads. The combination of these factors will result in significant Methane production, poor water quality, and unacceptably high levels of Methyl Mercury which will remain in the food chain. (Note 8)

### **AQUATIC WEEDS ARE A MAJOR PROBLEM**

Aquatic weeds including Water Hyacinth and Salvinia are already a significant problem in the Mary River. These thrive in shallow, nutrient rich dams with reduced downstream flows and have proven to be almost unmanageable in some other rivers. There are major cost impacts in the control of these weeds which have not been accounted for in the operating costs of the proposed dam. (Note 9)

### **CURRENT ENVIRONMENTAL FLOW REQUIREMENTS ARE NOT BEING MET**

The current level of water allocation in the river does not meet the environmental flow requirements of the Mary Basin Water Resource Plan, and in 3 of the 6 years that Sunwater has operated the Mary River scheme irrigators have been unable to access their full allocations from the Mary River.

### **SALINITY ISSUES ALREADY EXIST**

The Mary River is a Priority Catchment in the National Action Plan for Salinity and Water Quality.

Measurements of the existing river system during the dry months of the year and without a dam are already showing water quality levels outside the EPA recommended guidelines. (Note 11)

#### **PERFORMANCE & OTHER RISKS EXIST**

Big dam projects around the world tend to share three things in common. Costs that are greater than estimated, construction times that are longer than estimated, and yields that are lower than estimated. (Source: International Rivers Network) The cost of the proposal is not justifiable for the relatively small amount of unreliable water it may possibly provide.

#### **DROUGHT PERFORMANCE COMPARES POORLY WITH SOMERSET / WIVENHOE**

In times of extended drought, the proposed Traveston Crossing dam would be at dead storage level at least 24 months before the primary water supply storages of the Somerset/Wivenhoe system. (Note 12)

#### **CLIMATE CHANGE IMPACTS HAVE NOT BEEN ADEQUATELY ADDRESSED**

A predicted change of only 10% decline in rainfall would result in a decline of about 30% in stream flow and a significant and unacceptable reduction in environmental flows. The likely impacts of future climate change are not taken into account in the yield modeling of the proposed dam, or in the assessment of future irreversible environmental impacts. (Note 14)

#### **QWC DRAFT WATER STRATEGY OVERSTATES DROUGHT RESILIENT YIELDS**

The QWC Drought Response Plan uses the lowest ever yield year for supply sources to establish a baseline water availability position. It includes a forecast yield for Stage 1 of the proposed dam of 46,000 ML/A. In contrast, in the 2006-7 water year total stream flow at Dagon Pocket just downstream of the proposed dam wall was 26,000 ML.

#### **MAJOR FLOW REDUCTIONS IN DRY YEARS & DRY MONTHS OF ALL YEARS**

In drought years, and in the dry months of every year, planned extraction would severely reduce flows throughout the entire Mary River. For example, average flows in August and September would reduce to below 50% of the 110 year average natural state, without even accounting for effects of future climate change.

#### **CLIMATE CHANGE IMPACTS ARE ALREADY EVIDENT**

The last decade has seen flows in the Mary River down to about half of what was previously considered normal. This is a similar trend to the trend that has occurred in the Murray River system.

#### **CLAIMED SUSTAINABLE YIELD IS LESS THAN 10% OF BRISBANE'S WATER REQUIREMENTS**

The designed yield of the proposed Traveston Crossing Dam Stage 1 can, at best, supply less than 10% of South East Queensland's future water needs.

#### **WORRYING UPSTREAM FLOOD RISKS EXISTS**

As planned, the crest of the dam wall would be built to its final 89 metres Australian Height Datum Stage 2 height in Stage 1. Many houses in the dam footprint that will be occupied until Stage 2 is operational (estimated 2035) are below this height and are at risk if a major rain event occurs and unless the flood gates fail-safe mechanisms perform faultlessly. (Note 19)

#### **BETTER ALTERNATIVES ARE AVAILABLE**

There are viable alternatives to this proposal which would ensure that South East Queensland would have a truly secure and ecologically sustainable water supply with significantly lower triple bottom line impacts. These have not been adequately considered in the economic analysis in the EIS or in the Queensland Water Commission's draft SEQ Water Strategy. (Note 20)

#### **REMOVAL OF AGRICULTURAL PRODUCTION & IMPACTS ON FUTURE FOOD BOWL**

At a time when the supply of prime agricultural land is in decline and when the fuel cost impacts of getting food to markets is rapidly increasing, the proposal would remove from production a large area of strategically located highly productive, irrigated and developed land close to Brisbane and the Sunshine Coast. This impact is irreversible. (Note 21)

#### **PROPONENT HAS IGNORED APPROVAL REQUIREMENTS IN THE PAST**

The proponent, effectively the Queensland Government, commissioned in 2005 and currently operates the seriously under-performing Paradise Dam outside the Federal Government EPBC Act Conditions of Approval. (Note 22)

Save the Mary River Coordinating Group - Railway Station Kandanga QLD 4570 - Phone 07 5488 4800  
email: [savethemaryriver@gmail.com](mailto:savethemaryriver@gmail.com) - web: [www.savethemaryriver.com](http://www.savethemaryriver.com)

## NOTES FOLLOWING RELEASE OF SUPPLEMENTARY EIS

### Note 1.

In estimating the performance of the dam the Supplementary EIS uses a seepage estimate of 300 mm/year “consistent with estimates adopted for large storages in Queensland. Seepage or leakage from the reservoir will be low and no mitigation measures are required.” Yet the Government’s own consultant states “the rocks may therefore allow groundwater seepage or form pathways for leakage from dam storage” and further, “the stored water may reactivate structural features which may result in leakage”. If the 300 mm/year figure is a sensible estimate, supporting data is required to validate the estimate. It should be noted that “an inch per month” was the seepage estimate adopted for the preliminary hydrological modelling of the dam before any on-ground investigations had been conducted.

### Note 2.

The Mary River Catchment Coordinating Committee produced a comprehensive report on the impacts of the proposed South East Queensland Water Strategy (which incorporates the proposed interbasin transfer) on the Mary Catchment and a review of the likely effectiveness of the strategy in a drought. The report can be found at [www.mrccc.org.au/downloads/traveston%20dam/MRCCC%20SEQWS%20Comments%20July08.pdf](http://www.mrccc.org.au/downloads/traveston%20dam/MRCCC%20SEQWS%20Comments%20July08.pdf) The SEQ water strategy document clearly shows that stage 1 of the dam would do nothing but create a considerable urban water surplus for approximately a quarter of a century - this conflicts with statements in the supplementary EIS that the dam is required to provide water by 2012.

### Note 3.

The Supplementary EIS acknowledges the lack of data stating “We do not have basic population and life history information for most species, and this is certainly the case for the suite of threatened species recorded from the study area” (Ch. 18, p 18-17). The claim that Population Viability Analyses or Population and Habitat Viability Assessments for endemic and/or threatened species or habitats have not been carried out due to lack of data and problems with reliability of some PVAs is unacceptable. The EIS is seriously incomplete without such analyses. This is a major flaw which is not remedied by the claim that: “Qualitative forms of assessment (such as expert assessment) are reasonable alternatives.”

### Note 4.

This critically important issue has again been ignored in the Supplementary EIS. What is required is an independent study of the impacts of the proposed dam on estuarine water quality, an assessment of flows required to maintain healthy ecological processes and an assessment of the impacts of providing the flows on the yield of the dam, particularly during drought periods. Recently published studies of the estuarine processes in Hervey Bay indicate that freshwater flows from the Mary River drive the major circulation processes throughout Hervey Bay (Ribbe 2008).

### Note 5.

The most recent analysis of seasonal flow patterns in the Mary River confirms that the proposed dam would have its greatest environmental impact in dry seasons. ie: rather than easing the effect of dry seasons on the river downstream, modeling studies and direct analysis of historical data both indicate that the dam would increase the frequency and duration of stressful low-flow

periods in the river downstream. Specific environmental flow releases would be required to mitigate these impacts. These releases would reduce the economic yield of the dam.

**Note 6.**

The Supplementary EIS fails again to provide details of designs of key mitigation measures of the proposed fishway and turtle ramp. Rather, it presents inaccurate and contradictory comments in a Worley Parsons report which in several places acknowledges that the Paradise Dam downstream fishway (used as a model for the proposed dam) has never operated because the water level in the dam has never reached the operating level, yet in other places states that it has been “successful from the start of the operation”. The Paradise Dam fishway is in fact unproven and is currently the subject of legal action.

**Note 8.**

The estimate of GHG emissions in the EIS only includes construction. There are emissions from pumping the water to Brisbane - approximately 140,000 tonnes/year and emissions from methane and CO<sub>2</sub> from the dam itself - in the vicinity of 270,000 tonnes/year. The government proposes to offset emissions by 850,000 tonnes to make the project carbon neutral. But if total emissions are 140,000 during construction and then somewhere around 400,000 tonnes every single year after that, the first 10 years adds up to 4 million tonnes. The 850,000 tonnes that they plan to offset will be exceeded by emissions from the dam within its first two years of operation.

The Supplementary EIS dismisses concerns about the risk of bio-accumulation of methyl mercury in the dam without any analysis of the risk or environmental impacts. The catchment contains high concentrations of mercury and methyl mercury accumulation in aquatic biomass is evident in nearby Lake MacDonald and has been demonstrated in fish in Hinze Dam.

**Note 9.**

Many of the claims about aquatic weed control techniques in the supplementary EIS are not supported by fact and are easily disproved. In particular, several of the specific claims about weed management at nearby Lake Macdonald are demonstrably false. The proponent did not consult with the operators of this weed management programme before incorrectly referring to their work.

**Note 11.**

NRW salinity measurements show that low flows in the river downstream of the damsite are associated with high salinity, well above Qld water quality guidelines. The relationship between downstream flow impacts and downstream water quality impacts is not addressed at all in the supplementary EIS.

**Note 12.**

The supplementary EIS demonstrates this very effectively. Even though the Mary and the Somerset/Wivenhoe generally fall into drought conditions at the same time, the modeling presented in supplementary EIS demonstrates that the Traveston Dam draws down significantly earlier than the Somerset/Wivenhoe system.

**Note 14.**

The catchment modeling presented in the supplementary EIS still takes no account of any of the predicted future changes in rainfall, temperature or evaporation on the yield and downstream flow impacts of the proposed dam.

**Note 19.**

The Supplementary EIS has completely ignored the upstream flood risk and comments on the downstream risk instead. "A submission claimed that no other dam site in Australia has towns and people living below the top of the wall height. There are numerous examples of existing dams in Australia, where towns and cities are located downstream of major storages, for example the townships and cities below Wivenhoe dam and Hinze Dam in SEQ alone" This statement completely misses the point.

**Note 20.**

Alternatives to the proposed dam recommended by the Institute of Sustainable Futures would reduce greenhouse gas emissions by almost 800,000 tonnes and provide more water. In the face of climate change that makes a lot more sense than damming a river system leaving a legacy for future generations to fix like the Murray Darling River system.

What is lacking in the comparison between the proposed dam and a suitable desalination plant is comprehensive financial modelling which includes a clear description of and basis for all major cost and revenue assumptions with levels of confidence and degrees of accuracy clearly defined. Without this important analysis it is impossible to accurately compare the expected financial and GHG emissions performance of the project with a suitably located 70,000 ML/annum desalination plant.

**Note 21.**

The EIS states that the agricultural land area that would be lost to the proposed dam is a small in comparison to the total agricultural land area in the catchment. This simplistic analysis does not account for proximity to services, transport, irrigation, markets or the fact that most of the land that would be lost is already developed and experiences a particularly productive climate.

**Note 22.**

The operators of Paradise Dam are currently subject to court action over the alleged non-compliance with the EPBC Act conditions of approval.

## **In conclusion**

The Mary River is the last remaining major river system in the South East Queensland bioregion that has not been irreversibly compromised by water infrastructure development. It supports the marine ecosystems of Hervey Bay, the Great Sandy Strait and Fraser Island, and represents the best chance of survival for the vulnerable Australian Lungfish, and the only chance of survival for the endangered Mary River Turtle and the critically endangered Mary River Cod. The draft water strategy for South East Queensland has outlined many progressive water supply and management options which could provide more reliable and cost effective urban water security, without destroying the Mary River as well.