Coordinator-General's Evaluation Report: Synopsis

Introduction

In October 2006, in response to a submission from Queensland Water Infrastructure Pty Ltd (QWI), the Coordinator-General declared the Traveston Crossing Dam Stage 1 (the Project) to be a significant project for which an EIS is required under the *State Development and Public Works Organisation Act 1971* (SDPWO Act). In November 2006, the then Commonwealth Minister for the Environment and Heritage determined that the Project was a "controlled action" requiring approval under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), with the controlling provisions being the world heritage values of Fraser Island, Ramsar wetlands, listed threatened species and communities and listed migratory species. Under the terms of the bilateral agreement between the Queensland Government and the Australian Government, the SDPWO Act EIS process is accredited for the EPBC Act, and accordingly my assessment has considered the relevant impacts of the Project on matters of national environmental significance under the EPBC Act in addition to State requirements.

The Project is the design, construction, operation and maintenance of the Traveston Crossing Dam Stage 1 on the Mary River approximately 27 km upstream of Gympie. The Project includes access roads and the relocation of sections of existing roads and infrastructure. The Project would inundate approximately 36.5 km upstream along the Mary River from the embankment at 207.6 km AMTD.

The dam would have a full supply level (FSL) of 71.0 m Australian Height Datum (AHD) and an inundation area of 3,039 ha, with a storage capacity of approximately 152,429 ML with a proposed yield of 70,000 ML/annum. The preliminary design consists of a Roller Compacted Concrete Dam (RCC dam) approximately 760 m wide and 52 m tall, with a gated spillway and includes fishway and passage for other aquatic fauna including turtles.

Draft terms of reference for the EIS were issued for public comment from 9 December to 19 February 2007. In August 2007, the Coordinator-General finalised those terms of reference having considered all submissions received.

The EIS was publicly notified from 20 October 2007, with submissions closing on 3 December 2007. Owing to discrepancies between the printed, web-based and electronic (disc) versions of the documentation, I extended the submission period until 14 January 2008.

A large number of submissions were received in response to the EIS, including from community groups, the general public, local and State government agencies. I also received advice from State government agencies and the Commonwealth Department of the Environment, Water, Heritage and the Arts (DEWHA).

Following the review of all submission received, I asked the proponent, QWI, to prepare a supplementary report to the EIS (SREIS) to respond to the issues raised in submissions. I received that report in August 2008. Assessment was undertaken of the information in both the EIS and SREIS. In my detailed consideration of the issues, I sought further information from the proponent on a number of key issues. In addition, DEWHA commissioned reviews to be undertaken of the EIS and SREIS, and in November 2008 issued the reports of those reviews to the proponent and I. Responses to those issues have been collated by the proponent in their *Response to Information Requests, Implementation Framework* and *Response to Reviewer Reports* documents, which are available at www.qldwi.com.au.

In undertaking my evaluation of the EIS, I have considered the EIS, issues raised in submissions, the SREIS, the Commonwealth Reviewer Reports, the proponent's response to my information requests and the response to Commonwealth reviewer reports, and the advice I have received on a range of key issues from State agencies and DEWHA. In addition, I received a range of communications outside of the submission period from a number of community groups and individuals, which have been considered in my evaluation.

Rationale and alternatives

I accept that additional water supply is required for the South East Queensland (SEQ) region, having considered the importance of the SEQ region to Queensland, the demand for water in SEQ, existing supply sources within the region, the identified short, medium and long term water supply/demand gaps and Government's strategy to secure supplies for the region.

The Project is one part of a portfolio of projects to ensure secure future water supply for SEQ.

I understand that surface water supply forms one component of a balanced approach to securing those supplies, while considering population growth, cost and probable climate change. That balanced approach incorporates a portfolio of diversified measures including demand management, surface water augmentation, desalination, purified recycled water and interconnection of geographically and climatically diverse water supply sources.

Estimates of required water supplies vary with assumptions in relation to population growth, effectiveness of demand management and climate change impacts, however analysis conducted by the QWC has determined that it is it is likely that 210,000 ML/annum of additional prudent yield will be required by 2026, and 490,000 ML/annum required by 2051. The Project would supply 70,000 ML/annum of this additional required yield.

I note that the QWC's strategy considered a range of alternative supply options and appropriate proportions of each supply option, while noting that sections of the community have varied views of the preferred mix of measures. I note the QWC's determination that the portfolio supply approach adopted under the strategy satisfactorily reduces the risk of failure resulting from the current narrow supply basis, both from the geographic location of the source and the method of supply perspective, and as such additional surface water supplies are considered a necessary component of the portfolio approach to required new supplies.

I agree with the findings of the EIS that the strategy for achieving a water supply balance does not represent an unwarranted reliance on surface water options. Further, the Queensland Government's water supply strategy, which is based on QWC's deliberations as set out above, has given extensive consideration to, and a balancing of, a wide range of factors in selecting supply measures to pursue. The resulting strategy represents a defensible set of diverse demand and supply measures, including support for the proponent's plans in relation to the Project.

I note that desalination can and does form an important component of this water supply strategy, however, I consider it is reasonable for Government authorities to decide to defer further reliance on desalination.

Hydrology and water quality

The Mary River flows over 300 km from the headwaters to the estuary. The Project is located on the Mary River at AMTD 207.6 km. Most of the Mary River catchment is downstream of the dam (78.5%),. 74.3% of river inflows enter downstream of the dam based on mean annual flows. Modelling indicates that downstream flow changes as a result of the Project will significantly diminish after the first 25 km downstream (approximately Fisherman's Pocket).

Modelling undertaken by the proponent has demonstrated that the dam can operate while providing all existing allocations and observing the requirements of the *Water Resource (Mary Basin) Plan 2006*, especially all environmental flow requirements.

The protection and enhancement of aquatic habitat downstream is dependent on the optimisation of flows to enhance important dependent aquatic ecological outcomes. I have set flow performance indicators[1] to be observed at Dagun Pocket to protect species requirements. In general, these flow performance indicators will ensure flows are closer to pre-development conditions with a resulting improvement compared to the existing flow regime in the most impacted downstream part of the Mary River.

[1] Condition 8, Schedule C, Appendix 1

The outcomes of optimisation modelling with the flow performance indicators implemented support the conclusions made within the EIS and SREIS regarding the capacity of the Project to successfully manage environmental flows across all months and seasons and improve upon conditions currently experienced in the section of the Mary River immediately downstream of the dam.

Implementation of the flow performance indicators will mean that flows during July, August, September, and October will improve from the current situation and enable a return towards the larger winter and spring flow patterns experienced prior to agricultural development in the Mary River catchment. There will be an enhanced ability to manage releases to produce greater water level stability in the Mary River from Dagun Pocket to Fisherman's Pocket during the key lower flow months of July through to January. This part of the Mary River contains breeding habitat for species such as Queensland Lungfish (also called the Australian Lungfish) and nesting sites for the Mary River Turtle. Sustained lower and more stable flows during winter and spring, along with ongoing periodic large flows in summer/autumn, are particularly important for sustaining and generating macrophyte coverage and hence general aquatic life. Stable base flows and minimal extraordinary large flows during winter and spring are desirable factors in relation to Lungfish, Mary River Cod and the broader fish community. In addition, the reduced overall flows (i.e. on a whole of year basis) in the most impacted section of the River downstream of the Project will also result in an increased percentage of combined riffle and pool habitat compared to the current situation, at the expense of some run habitat.

I am satisfied that the Project in itself and cumulatively will have no discernible impact on flows to the estuary, including the Great Sandy Strait Ramsar Wetland.

Flood assessments of the dam indicate that flood mitigation benefits can be provided downstream, particularly for Gympie, but provision of those downstream benefits may impose flood impacts on areas upstream of the dam around the inundation area. I have therefore required[2] that opportunity is provided for all directly affected individuals and organisations to express their views and comment on any proposed strategies for flood mitigation. The final operating strategy must be approved by the Coordinator-General and the Dam Safety Regulator prior to the commencement of construction.

Species, habitat and connectivity

For over 150 years, this Catchment has been modified through the timber, horticulture, grazing, and river mining (originally gold but in recent years sand and gravel) industries. Additionally, an ever growing portion of the catchment is now used for rural-residential development. These intensive developments have all had a significant impact on the Mary River and its catchment, principally through vegetation clearing.

The terrestrial environment in and around the Project Area has similarly been subject to significant development. At the time of European settlement the area contained dense subtropical rainforest and eucalypt woodlands. The high rainfall, deep soils and habitat complexity contributed to a significant abundance and diversity in terrestrial life. Since European settlement, while economic development has supported the wellbeing of the greater community, the impact of timber gathering, agriculture development and other activities has significantly altered the landscape and significantly diminished the area's biodiversity values.

The original pre-European vegetation has been largely cleared with the exceptions of some narrow remnant strips along waterways and in high sloping areas. The EIS reports that 85% of the study area is cleared. Rural and residential development has brought with it exotic species, some of which are now significant weeds and pests. The development of this land has led to vegetation fragmentation. The resulting limited connectivity means wildlife is vulnerable to disease, bushfire, and inbreeding. The development of the Project would result in further landscape change that could, without mitigation and offsetting activities, lead to further impacts on local ecosystems and species.

I have considered the potential impacts of the Project on terrestrial and aquatic native species in the context of the current degraded and worsening ecological situation in the Mary River catchment,

[2] Condition 8, Schedule C, Appendix 1

particularly what actions are required to mitigate those impacts, stabilise the current ongoing ecological decline, and what further actions would reverse that decline and address uncertainty that may remain in terms of the future viability of native species.

All species, including native fauna species in the Project Area, depend on and are part of complex ecosystems. The preservation of native species, especially threatened species, requires the protection of their supporting ecosystems, which is recognised by a number of Queensland Government policies and legislative requirements which I have taken into account. The Project Area includes endangered riparian regional ecosystems. In this locality, the riparian vegetation types have demonstrated an ability to regenerate despite around 150 years of ongoing disturbances, given appropriate protection and support. Furthermore, fragmented wildlife corridors that could be augmented through actions as part of the Project to more fully restore connectivity between areas of fauna habitat are present within the Project Area. The conditions[3] that I have imposed on the Project are directed at the creation, preservation and restoration of terrestrial and aquatic habitat.

Approximately 78.5% of the Mary River catchment lies downstream of the Project, with 21.5% of the catchment upstream. At FSL the inundation area will cover 36.5 km or approximately 4% of the Mary River, included in the 21.5% of the catchment upstream. I consider that the loss of the hydraulic habitat within the inundation area requires mitigation in terms of enhancement of aquatic habitat within the Project Area and elsewhere in the catchment to improve and allow for species connectivity. Potential Project impacts on aquatic habitat and fauna will include the inundation of existing riverine habitat and its replacement with lacustrine habitat, potential flow and water quality changes downstream that will diminish with distance from the dam wall, and the potential barrier to species movement presented by the dam itself.

I have imposed conditions[4] to provide a means for native species (including Mary River Cod, Lungfish and Mary River Turtle) to move both upstream and downstream of the dam wall. The Project includes a fishway and turtle bypass system to facilitate this required movement. In addition, Project conditions supporting improved connectivity include large-scale riparian habitat restoration and protection and reintroduction of snag habitat, improved flow conditions and the retrofit of a fishway and a turtle bypass system on existing barriers in the catchment.

Connectivity between areas of habitat is broadly recognised as essential for the long term survival of fauna species. Therefore, to facilitate terrestrial fauna movement, I have required that native vegetation must be protected and native habitat restored to form largely continuous corridors (recognising existing and ongoing discontinuities associated with roads, streams etc) of native vegetation with a width of at least 100 metres to connect key areas of habitat. Those key areas of habitat that I require to provide linkages to the riparian habitat adjacent to the inundation area, the West Cooroy State Forest to the east of the Project, and at least either Imbil State Forest to the west of the Project or Amamoor State Forest to the north east of the Project. This may involve remnant or rehabilitated vegetation adjacent to Kandanga Creek, Belli Creek, Yabba Creek and existing remnant or rehabilitated areas adjacent to the Amamoor, West Cooroy and Imbil State Forests and actions to address the requirements of the Vegetation Management Act 1999 (VM Act) that are applicable to the Project.

In establishing my conditions relating to the creation of protected riparian habitat, which in most cases involve requirements for vegetated buffers in the riparian zone of at least 60 m width, I particularly noted research quoted in the proponent's Response to Reviewers Report indicating that:

- vegetated riparian buffers between 30 m and 60 m wide are effective at removing nutrients, faecal coli forms and organic pollution, pesticides and sediment. Wider buffers are needed to protect water quality during severe storms when a large amount of sediment and pollutants can enter the waterways

- the majority of edge effects such as increased light and air movement generally extend up to or greater than 60 m from a forest edge so 30 m wide buffers are not sufficient to provide habitat for

[3] Conditions 4, 5, 7 & 21, Schedule C, Appendix 1
[4] Conditions 22 & 23, Schedule C, Appendix 1

specialist forest interior biota. Wider buffers greater than 60 m can reduce weed invasion and have potential to reduce management and weed maintenance costs.

- woody vegetation buffers in riparian areas provide inputs of large woody debris and smaller organic matter. These inputs provide a basis for aquatic food webs as well as food in the form of fallen insects and shelter for fish species. Shading of streams by riparian vegetation keeps water temperature down increasing dissolved oxygen concentrations and providing conditions for a greater diversity of aquatic invertebrates and vertebrates

- while buffers of native woody vegetation provide the greatest benefits especially for biodiversity, grassed buffers with grazing and other land uses excluded can provide water quality benefits. Woody vegetation has important advantages over grasses in the parameters of bank stability, and also has a higher ability to remove pollutants from shallow groundwater due to the deeper root zone of trees, and greater biodiversity benefits compared to grassed buffers due to its more complex structure and the provision of large woody debris

- a 60 m buffer is considered the minimum width to provide habitat for the adults of the endangered Giant Barred Frog (*Mixophyes iterates*)

- revegetation of riparian buffers can potentially result in large economic savings for municipal water treatment as a direct consequence of reduced sediment load and pollutants bound to sediment entering the water treatment plant. An annual saving of up to $60 million in water treatment costs was estimated in a buffer restoration model for the Brisbane River catchment.

I have conditioned[5] to specifically require the achievement of an overall net gain in habitat for the various terrestrial species that are present or likely to be present. In addition, in order to maximise the effectiveness of the Vegetation Management Offset and riparian restoration works, I have conditioned[6] the proponent to control and where possible eradicate weeds and feral animals and prevent agricultural animals from accessing protected areas within the inundation area buffer.

As well as the direct loss of habitat availability for native terrestrial plants and animals, the existing riparian area contains severely degraded native vegetation which, substantially affects the quality of the in-stream conditions for native aquatic flora and fauna. This degradation deprives aquatic flora and fauna of valuable ecosystem services, including the improved water quality provided by a healthy riparian zone through its filtering of runoff into streams and the erosion constraints it provides by stabilising water way banks. A healthy riparian zone also provides food and shading at the waterway edge and, importantly, generates large woody debris within adjacent waterways. Continued supply of large woody debris requires riparian vegetation cover to be maintained.

Large woody debris provides a range of environmental values to waterways, including the provision of:

- physical habitat diversity and structural complexity for aquatic organisms

- nutrient cycling

- stream channel and bed sediment stabilisation

- fine particulate organic matter for biological processing

- substrate stabilisation to assist colonisation by biofilm (algae, bacteria and fungi) and invertebrates (i.e. important elements of the food chain)

- refuge areas for fish to avoid predators, sunlight, high water velocities, and also for use as spawning sites or territory markers

- re-oxygenation of water flowing over large woody debris and prevention of stagnation

[5] Condition 21, Schedule C, Appendix 1
[6] Conditions 4 and 21(k), Schedule C, Appendix 1

- resting, perching, foraging, lookout and crossing points for terrestrial organisms

In my view, efforts to reintroduce woody debris and substantially improve the degraded nature of the riparian zone is the key to improving the health of the aquatic fauna in the vicinity of the Project and the prospects for threatened aquatic species generally in the Mary River catchment. The availability of woody debris appears to be particularly important for species such as the endangered Mary River Cod and Mary River Turtle.

I am requiring[7] a series of interconnected and extensive risk mitigation and habitat improvement measures that will lead to:

- the revegetation, rehabilitation and protection of high quality riparian and in-stream habitats via the creation of protected riparian habitat areas
- improved flow conditions downstream of the Project, particularly in terms of improving water quality outcomes and aquatic fauna movement capabilities to coincide with two new fishways and two new barrier bypass systems for turtles
- an applied research program to help resolve residual scientific uncertainties relating to the biology of EVR fish, frog and turtle species and mitigation measures that may aid their recovery within the Mary Catchment
- specific and targeted measures to treat and reduce injury, disease and other Project risks for fish, frogs and turtles
- the application of active aquatic weed control activities to ensure no sustained aquatic weed outbreaks throughout the Project's inundation area, which extends for over 30km in relation to the main Mary River channel
- the development of individual property management systems and funding for associated capital investments targeted at properties within the Mary River Valley to optimise catchment water quality and riparian vegetation outcomes

As part of the Project, in addition to required large-scale revegetation and the creation of new aquatic fauna and frog refuge areas, I have required the proponent to implement and provide at least $35 million funding for research to address knowledge gaps relating to the requirements for key species (Mary River Cod, Mary River Turtle, Lungfish and Giant Barred Frog[8]). The outcomes of the research must be used to manage the effectiveness of the mitigation and offset areas required to protect the key species.

In recognition of risks and uncertainties associated with the complexity of biological needs and ongoing threatening processes relating to threatened species, I have required further precautionary habitat creation measures over and above the creation of new habitat within the Project Area to mitigate the loss of inundated habitat. The proponent is required to cause the establishment, protection and maintenance of further protected riparian habitat and associated in-stream aquatic fauna refuge areas outside the Project Area throughout the catchment via a Catchment Enhancement Program, funded by the proponent to a total of at least $10 million.[9]

Sediment and geomorphology

The EIS notes that the trapping of sediment by the dam will cause a major reduction in fine and coarse sediment load from the dam wall downstream to the Amamoor Creek confluence, which may cause 'clearwater' scour. Changes to flow characteristics may also lead to increased bank and bed erosion in this zone. This part of the Mary River contains important aquatic habitat, and it will become even more

[7] Conditions 4, 5, 8, 9, 11, 21, 22, 23, 31 of Schedule C, and Schedule A (Operational works that is constructing or raising of a waterway barrier works). Appendix 1
[8] Condition 11 Schedule C, Appendix 1
[9] Conditions 4 and 5, Schedule C, Appendix 1

critical that this habitat is protected given the habitat changes that will happen in the inundation area. I consider it critical that the bank and bed stability in this part of the Mary River is managed to protect aquatic habitat. I require that that the proponent must undertake sediment movement monitoring both upstream and downstream of the proposed reservoir area in the period before construction commences. These measurements of actual sediment movement will provide a better assessment of the likely sediment in flows downstream of the reservoir and better inform required geomorphology mitigation measures downstream. Those studies must be provided to me in the Bank Erosion and Sediment Management Plan before Principal Construction Works proceed.[10]

Rates of sediment input to the Mary River have increased since European settlement and heavy siltation in certain reaches has occurred. Only 10% of the catchment is made up of remnant vegetation or national parks, with the remainder consisting of land uses dominated by grazing, forestry, rural residential, cropping, urban development and horticulture. Large volumes of sediment are transported during high flow events. The banks of the Mary River are prone to erosion due to a number of factors including groundwater flows through the bank causing undermining, lateral migration of the river, rapid hydrograph recession causing bank slumping, removal of bank vegetation and sand and gravel extraction activities. Uncontrolled stock access and scour around in-stream woody debris are also causes of bank erosion.

The erosion, transport and deposition of sediment along the Mary River and to the Great Sandy Strait are important components of fluvial geomorphology and the overall sediment balance of the Mary River catchment. The EIS has noted that sediments from the Mary River are supplied to the Great Sandy Strait and transported northwards by tidal currents where they are deposited to mix with continental shelf and shoreline sediments.

The magnitude of hydrological and sediment transport impacts will reduce with distance downstream from the dam, and it is likely that any impact on erosion, deposition or habitat maintenance processes would also diminish. The EIS findings indicate that any impacts in the Gympie and Barrage backwater zones (downstream of the Amamoor Creek confluence) are unlikely to cause any significant change from current conditions.

The EIS found that the Project would cause minimal overall change to sediment levels in the estuarine zone. Based on the information provided to me, including the findings of the Commonwealth Reviewer Reports, I am satisfied that it is unlikely that the Project will have any discernible adverse impact on the Mary River estuary. However, given the ecological significance of this area, and consistent with the precautionary approach I require that the Proponent develop an estuarine monitoring program for my approval prior to the extraction of Project Yield[11] to confirm that there are no discernible adverse impacts on the Mary River estuary.

Land use change

The Project will result in the permanent change in land use within the Project Area and potentially within additional areas used for required vegetation management offsets, downstream habitat restoration and the provision of wildlife corridors.

The EIS notes that the Project will result in the loss of an estimated 3.2% of land used for intensive agricultural purposes (including intensive animal production, cropping, and horticulture) in the Mary River Catchment. This includes 6.2% of the land used in the catchment for intensive animal production (including dairying). The Project will reduce the area of available Good Quality Agricultural Land by 3,827 ha, which is 1.7% of the Good Quality Agricultural Land in the Mary Valley River catchment.

Relevant State and regional planning documents support the Project, and while the relevant local government planning schemes do not directly address the Project, planning requirements do not prevent

[10] Condition 15 Schedule C, Appendix 1
[11] Condition 24, Schedule C, Appendix 1

the Project proceeding. I have imposed conditions to preserve rural land use and rural character as far as possible, including measures to reduce fragmentation of properties and ensure they remain viable.[12]

The Project will not preclude land other than the inundation area buffer and protected riparian habitat, or other specifically targeted offsets and wildlife corridors, from being used for farming activities.

Social and Economic

I have considered the social and economic benefits that secure water supplies would deliver to the wider community of SEQ, balanced against the impacts on affected individuals and businesses in the local community as a result of the disruption and change caused by the development of the Project. I acknowledge and appreciate that many residents in the vicinity of the Project have experienced negative impacts on their lives due to potential change and uncertainty. I also expect that the construction and delivery of the Project will create employment, training, recreational and community outcomes, amongst others, which will benefit the local community.

The township of Kandanga will be directly affected by an increased level of flooding as a result of the Project with 16 houses fully or partially below the 1 in 100 AEP flood line. Community facilities below the 1 in 100 AEP flood line, with the Project, are proposed to be replaced with upgraded facilities on higher ground at Kandanga. These facilities are already subject to intermittent flooding impacts without the Project. I require that[13] the proponent arrange for an independently facilitated consultation process with the Kandanga community and the GRC to establish a masterplan for delivery of Project mitigation measures relevant to Kandanga in an integrated way, and provide at least $3.5 million towards implementation of a Masterplan for Kandanga.

I have also required[14] that the proponent contribute at least $4 million for the upgrade of sewerage and water supply for Kandanga prior to the completion of dam construction.

The proximity of Kandanga Cemetery to the inundation area and the associated flooding risk is a significant concern for the community. While there is no impact on the cemetery by the Project at its full supply level, the proponent has investigated methods to protect burials from risk of inundation during major flood events. The establishment of a grassy verge is an option to reduce flood risk to the cemetery. This would enable the cemetery to operate in exactly the same way and all used and unused plots to be preserved. I require[15] the proponent continue to work with the community to decide on the most appropriate action. In the absence of a consensus decision, the grassy verge option as described in the EIS is to be implemented as the default option prior to the completion of dam construction.

A large workforce will be required during the construction phase and this will provide a range of benefits to the local community through an increase in business activity through use of local services and facilities including schools and sporting clubs. I require a construction camp[16] that will house at least 200 workers to help to mitigate the impact on the local housing market during construction.

I concur with the proponent that it is likely most social impacts would trend from negative to positive over time. Many existing residents would experience negative impacts on community values such as connectivity and harmony, whilst many existing and future residents would benefit from increased amenity and employment options. A substantial number of mitigation measures to offset negative impacts have been recommended in the EIS, and many Queensland Government measures have already been implemented.

The Project is expected to deliver enduring regional economic benefits including:

[12] Condition 13, Schedule C, Appendix 1
[13] Condition 32, Schedule C, Appendix 1
[14] Condition 32, Schedule C, Appendix 1
[15] Condition 32, Schedule C, Appendix 1
[16] Condition 30, Schedule C, Appendix 1

- a discounted national welfare benefit of around $3.44 billion raising national employment and income

- increased real Gross Regional Product and Gross State Product to SEQ and Queensland respectively and

- increased aggregate employment in SEQ (includes approximately 1745 jobs at peak construction in 2009).

The construction of the Project will result in positive economic impacts to the local area as a large workforce will be required and this will provide a range of benefits to the local community through an increase in business activity through use of local services and facilities as well as additional employment and training opportunities. I am mindful, however, that the people of the Mary Valley, particularly those subject to direct property impacts, are being asked to cope with substantial disruption to deliver water security for the SEQ region.

Economic impacts during the operational stage of the Project on balance will be positive, with the completed dam expected to provide increased tourism opportunities to the local area. Some negative impacts will result from the displacement of existing agricultural land use of the directly affected properties and to those subsequent businesses who currently service them. The injection of capital from land acquisition, replanting of timber on purchased land, up-skilling of labour, and increased capacity and capability of local businesses that provided goods and services for the construction of the Project are anticipated to result in long-term benefits to the local community.

The Project must comply with the water security arrangements set out in the *Water Resource (Mary Basin) Plan 2006* and therefore there will be no economic impacts on downstream water-dependant businesses.

While I note the strong economic benefits that the Project will provide to SEQ and in part to the local economy, I have imposed a series of conditions[17] to mitigate adverse local economic impacts. These conditions require the proponent to provide at least $20 million to implement a community and economic development program. This community and economic development program must include the development and implementation of a recreational tourism program as well as a series of programs targeted at supporting and encouraging the sustainable growth of the local economy, especially agricultural enterprises.

Other elements for assessment

Air: The EIS indicates that air emissions will result from Project construction activities. I have imposed requirements in regards to air quality,[18] and the proponent is required to implement mitigation measures as required. Where monitoring demonstrates the air quality criteria are being exceeded and all practical mitigation measures are being implemented, the proponent must implement a short term scaling back of operations. Greenhouse gas emissions for the Project are likely from construction energy consumption, indirect emissions, land use change and operational activities. I have required[19] that these emissions be offset in line with Kyoto-based accounting methods.

Noise and vibration: I have concluded that the adverse environmental impacts of noise and vibration arising from the Project can be suitably mitigated and managed. The target goals for noise and vibration presented in the EIS have been enhanced based on advice from relevant agencies. Furthermore, I have recommended that the proponent develop a strategy to engage broadly with the community with regards to noise, vibration and blasting issues.

Waste management: I have concluded that the three major issues related to waste impacts of the project were the availability of land fill, recycling of millable timber and burning of vegetative waste. I am

[17] Conditions 30, 31 and 32, Schedule C, Appendix 1
[18] Condition 17, Schedule C, Appendix 1
[19] Condition 18, Schedule C, Appendix 1

satisfied that all waste management issues can be suitably managed and have set conditions to ensure appropriate outcomes.[20]

Transport and access arrangements: I am satisfied that the Project will not lead to any significant impacts on the regional and local road network in terms of traffic capacity, road safety or pavement deterioration. The proponent is required[21] to maintain a functional road network through new roads, road upgrades and relocations, new bridges and individual property access. Traffic management plans must be prepared to minimise the disruption of works and the potential effects on safety, convenience and pavement condition.

Cultural heritage: The proponent has developed an Indigenous Land Use Agreement (ILUA), including indigenous cultural heritage as a component. The ILUA has been authorised by the native title parties and registered by the National Native Title Tribunal. For sites not covered by the ILUA I have required that an approved cultural heritage management plan be in place prior to activities that may cause harm to Aboriginal cultural heritage.[22]

No sites of non-indigenous cultural heritage within the Project Area are included on statutory registers maintained by State and Commonwealth agencies. However, a number of features that may hold general historic significance were identified within or adjacent to the Project Area. I have required additional field assessment and mitigation strategies to manage potential impacts on non-indigenous cultural heritage.[23]

Hazard and risk: A hazard identification and risk assessment was undertaken as part of the EIS to address the risks which may affect the environment, and the health and safety of the community. Dam safety, climate change, natural hazards and extreme weather conditions hazards amongst others were considered. The final design for, and construction and operation of, the Project will be in accordance with the relevant standards, including the *ANCOLD Guidelines and the Queensland Dam Safety Management Guidelines*[24] and that the response plans and actions be implemented in cooperation with the relevant agencies and authorities.[25]

Cumulative impacts: Based on the material before me, I have evaluated the potential cumulative impacts of the Project having regard to the potential risks and benefits that the Project will create, the mitigations and offset mesures and the conditions that I have imposed. I consider that on balance the potential cumulative impacts of the Project will be positive, particularly in consideration of the improved environmental and habitat outcomes that will be created. The social and economic impacts of the Project in regards to SEQ are strongly beneficial, but I recognise that while there are many positive local economic and social benefits that will result from the Project, the process of change and the resulting uncertainty has caused anxiety and distress to many local residents. However in view of the need for the Project and the mitigation and offset measures that have been imposed, I consider that overall, the cumulative impacts of the Project are positive and the adverse impacts are acceptable.

[20] Condition 27, Schedule C, Appendix 1
[21] Condition 20, Schedule C, Appendix 1
[22] Condition 25, Schedule C, Appendix 1
[23] Condition 26, Schedule C, Appendix 1
[24] See conditions for "Operational works that is the construction of a referable dam as defined in the *Water Supply (Safety and Reliability) Act 2008*" at Schedule A, Appendix 1
[25] Condition 29, Schedule C, Appendix 1

Conclusion

The Project is a key component of the Queensland Government's strategy to provide secure water supplies for SEQ. The Project will contribute to addressing the medium to long term water supply shortfall and in particular, provide a prudent increase in surface supply options as part of the overall diversified supply strategy.

The Project would complement other water supply related projects and demand management initiatives either completed (e.g. Cedar Grove Weir, Bromelton Offstream Storage, Tugun Desalination Plant), planned (e.g. Northern Pipeline Interconnector Stage 2), or underway (e.g. Wyaralong Dam).

In undertaking my evaluation of the EIS, I have considered the EIS, issues raised in submissions, the SREIS, the Commonwealth Reviewer Reports, the proponent's Response to Information Requests and Response to Commonwealth Reviewer Reports, and the advice I have received on a range of key issues from State agencies and DEWHA. In addition, I received a range of communications outside of the submission period from a number of community groups and individuals, which have been considered in my evaluation.

I am satisfied that the requirements of the SDPWO Act have been satisfactorily fulfilled, and that sufficient information has been provided to enable me to finalise the required evaluation of the potential impacts, attributable to the Project.

The various impacts, identified in both the EIS and the SREIS, are recognised. I consider that those impacts are acceptable having regard to the significance of the Project in terms of ensuring security of water supply for South East Queensland and the mitigation and offset measures that will be provided by the Project. Those mitigation and offset measures are considered particularly significant in terms of the provision of extensive and connected habitat in the context of an existing degraded environment within the Mary River catchment.

While I am mindful that the people of the Mary Valley are being asked to cope with substantial disruption to deliver water security for the SEQ region, I am satisfied that the requirements of my conditions, including the implementation of a community and economic development program including the implementation of a recreational tourism program as well as a series of programs targeted at supporting and encouraging the sustainable growth of the local economy, especially agricultural enterprises, will result in acceptable, and, over time, beneficial outcomes.

I recommend that the Project, as described in this Evaluation Report, proceed, subject to the conditions in Appendix 1, the updated commitments made by the proponent in the Response to Reviewer Reports, and my recommendations.

The conditions that are set out in Appendix 1 of this Evaluation Report include:

- conditions that must be imposed on development approvals for the Project (Schedule A)
- recommendations for other State approvals that will be required for the Project (Schedule B) and
- imposed conditions under the SDPWO Act, which are enforceable through that Act (Schedule C)

Although I have not been asked to evaluate the possible Traveston Crossing Dam Stage 2, I have reflected in a general way on the potential impacts of the possible Stage 2 on my required mitigations and offsets for this Project. I note that Stage 2 would significantly adversely impact on many of the mitigations I have imposed, making the achievement of the Stage 2 project more difficult. In light of my observations, I therefore recommend that the Government should reflect on the suitability of the potential Stage 2 project, that the strategy for long term water supply for SEQ should not rely upon Stage 2, and Government should consider alternative water supply measures to address identified long term water supply requirements.

This report will now be provided to the Commonwealth Minister for the Environment, Heritage and the Arts, pursuant to section 17(2) of the SDPWO Regulation and the Bilateral Agreement between the

State of Queensland and the Australian Government as the assessment report to enable a decision on approval of the controlled action for this Project pursuant to section 133 of the EPBC Act.

Following this Evaluation Report, the proponent will be required to obtain a number of State approvals, including for environmentally relevant activities, and interim resource operations licence and operational works approvals for clearing native vegetation and construction of a referable dam.

I would like to take this opportunity to thank all individuals, organisations and advisory agencies that have contributed to the EIS process by providing submissions on the Terms of Reference and the EIS. This input has contributed to the development of appropriate and reasonable conditions that are to apply to the Project to ensure best practice. I would particularly like to thank advisory agencies for their responses to my requests for advice and input, which has assisted in my evaluation of the EIS.

A copy of this report will be provided to the proponent and advisory agencies and will be made publicly available on the Department of Infrastructure and Planning website, at www.dip.qld.gov.au.

Colin Jensen
Coordinator-General

6 October 2009