

Reportage:
To Paradise and beyond

Reporter:
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With a sweep of his arm, Dave Murray shows where the proposed dam would straddle the valley. Starting at a distant hill in front of us, his pointing finger moves around to a ridge behind and above us.

The thing seems too gargantuan for this place – and too huge to fit in my head. I simply can't see it. Before I can open my mouth to remark on this, Murray pre-empts me. 'That's quite a high wall,' he says. As though in mitigation, he adds: 'It'll end up looking quite aesthetic when we're finished.'

Murray, senior dams project manager with Queensland Water Infrastructure (QWI), a corporation set up by the Queensland Government in 2006 to develop water projects, has brought me here on a tour of South-East Queensland's dams. We've seen dams old and new, and now we're contemplating the rural setting of a dam that's proposed but not begun.

We're on the back veranda of a brick veneer home, 1825 Gympie-Brooloo Road (aka Mary Valley Highway), about a 130 kilometres north of Brisbane, twenty-seven kilometres south of Gympie and six kilometres north-east of Kandanga (population two hundred). More pertinently, we're two kilometres upstream from a tranquil spot on the Mary River called Traveston Crossing.

The property on which the house stands has been bought by QWI. It is one of about six hundred that would be affected if the proposed dam and reservoir grow to their maximum projected size. QWI wants to build the dam in two stages. Stage One would flood 3,039 hectares of land and thirty-six kilometres of river by 2011. Stage Two, due after 2035, would flood an extra 4,096 hectares, creating a lake nearly twice as long as Sydney Harbour and holding slightly more water.

The house is empty but may soon accommodate dam construction workers. Its veranda offers a shallow panorama of the flat, kilometre-wide valley. Behind a fringe of greenery, the Mary River swings through the middle of this alluvial scene. It's a picture-postcard composition, yet an unsettling silence seems to lie over it, as though every living thing is holding its breath in anticipation.

Living things seemed far away a few days previously. It was June 2007; I was making the first of two research trips through the region. Sitting at a conference table in QWI's Brisbane headquarters, I was listening to QWI chief executive officer Graeme Newton brief me on the Traveston Crossing Dam, as the proposed barrier on the Mary River was called. Dave Murray's large frame bulked on the other side of the table, near QWI's media person, Stephanie Wilson. I was there to learn about dams in general and Traveston Crossing in particular.

Urbane and calmly confident, Newton was outlining the government's arguments for the dam. His polished presentation sought to convince me that this dam (together with other planned works) really was the best solution to the water crisis confronting the rapidly growing south of the state in its sixth year of drought. The dam-building rationale (doggedly bonded to the government's growth-is-good mantra) went like this: The population of the area around Brisbane will balloon from just under three million today to more than five million by 2050, and water consumption will rise in tune. At the same time, global warming is skewing rainfall patterns: rain is falling neither as often as it used to nor where dams were once built. Climate change and rapid population growth have created a politically poisonous cocktail: no government can survive long if nothing's coming out of the tap.

In 2007 South-East Queensland was using 480,000 megalitres (ML) of water a year. Government statistics showed that homes were taking about two-thirds of this, so each person was getting through nearly three hundred litres every day. It was a consumption level that couldn't be sustained because, even if the population miraculously stopped growing, this was still 40,000 ML a year more than the government considered prudent. But, given the population growth rate, the government calculated that by 2051 it might need to provide as much as 930,000 ML a year – more than double today's consumption.

This 'supply–demand gap', added to the possibility of more fickle rainfall in future, pushed the state government of then Premier Peter Beattie into announcing a mix of measures in 2006 to secure future water supply. They included water recycling, desalination, increased efficiency, demand management, boosting the capacity of existing dams and building two new dams – Traveston Crossing and Wyaralong south-west of Brisbane. For dam engineers, who'd been kicking their heels since dam-building stalled in the late 1980s, the good time times looked set to roll again. Further, a nine billion dollar 'Water Grid' of interconnected pipelines would link the region's seven major proposed and existing dams, allowing water to be moved to where it was needed.

Beattie insisted at the time that building new dams was unavoidable. Data dug up for a June 2006 desktop review of potential dam sites by consultants GHD Pty Ltd convinced him that Traveston Crossing was the best site for the bigger of the two new dams. 'When all the factors, such as potential yield, cost effectiveness, environmental,

cultural and social impact, strategic value and reliability of the sources are taken into account, this is simply the best catchment area available,' he said. In February 2008, as the worst drought in a century looked set to break, Beattie was sticking by his view: 'We're going to have another million people in the next eighteen years. If they don't have water, they die. It's a life-or-death issue. We needed to build the dam and that was the best site for it.'

Anna Bligh, Beattie's successor, was also convinced. And Graeme Newton, a professional charged with ensuring that the growing population of the wettest state didn't run dry, could see no viable alternative. 'We've got level five water restrictions at the moment and this highlights the need to drive down demand as well as supplement supply. On the demand-management side this includes rainwater tanks, water-saving devices on taps, dual-flush toilets, front-loading washing machines, subsidies, and so on. But that can only get to a certain level. Naturally, because we build dams, our focus is on the supply side.'

After Newton finished rationalising the water plan for the next forty-three years, he and Murray got down to the nitty gritty of dam-building. The science, the technology and the process are fascinating, the sheer size of the project astounding, but I wondered whether all this might be so dazzling the dam's proponents that they were failing to see its impact on the world beyond the computer screen.

I was also struck by a paradox. Traveston Crossing Dam would need federal government approval, and this could be sought only after QWI had submitted an environmental impact statement (EIS). At the time of my June 2007 visit, the EIS had been in the pipeline for more than six months but was not finalised. Even so, Newton and Murray – and seemingly a host of others inside and outside government – were treating the dam as a foregone conclusion. QWI had already bought more than half the properties the dam would affect. By February 2008, after it had issued the EIS and accepted the public's comments, it had not only acquired nearly three-quarters but also started clearing vegetation near the dam site. Wasn't this jumping the gun, I wondered.

With Dave Murray beside me in my hire-car, I let a torrent of traffic carry me through Brisbane's western suburbs. An hour later we emerged into a tired landscape the colour of dust.

Murray's mission was to show me dams and tell me about dam building. The deal was that we'd avoid politics. He acknowledged there were issues with large dams that dam-builders needed to come to terms with. But dam building is his life, and he is passionate about his work and does it to the best of his ability. I have no problem with that.

The first dam on our itinerary was Wivenhoe, on the Brisbane River, forty kilometres west of the state capital. It consists of an earth and rock embankment more than two kilometres long and fifty metres high and a concrete spillway topped by five

steel gates. As well as providing water and generating 4.5 megawatts of electricity, it was designed to prevent flooding in the city. Floods seemed an incongruous notion that day; twenty-two years after the dam was completed, Lake Wivenhoe was just 15 per cent full.

Wivenhoe Dam does its job well. If there are good dams and bad dams, if a dam's minuses don't swamp the pluses across a spectrum of (usually anthropocentric) criteria, this is probably a good one. Generally, bigger dams are more likely to be 'bad'. But not all small dams are 'good', and even 'good' dams have negative impacts. Wivenhoe's include a litany of upstream and downstream effects: major changes to habitats for invertebrates and fish in the Brisbane River and detrimental impacts on fisheries in Moreton Bay. On the other hand, without it Brisbanites wouldn't be able to flush toilets or have showers, and would live in fear of floods.

Murray helped build Wivenhoe. The son of a travelling movie salesman, he was born in Brisbane, raised in Townsville and excelled at maths at school. In 1975 he graduated from the University of Queensland with an honours degree in civil engineering and joined the Water Resources Commission, which seconded him to the Wivenhoe project. One of his tasks was to lay the foundation grouting, the mixture of cement and water that would waterproof the rock foundation.

Next we visited Borumba Dam, on Yabba Creek a hundred kilometres further north. This is arguably another 'good' dam. Finished in 1964, it supplies water to irrigators and the Sunshine Coast via the Mary River and is popular for fishing and boating. Lying in a deep valley and with a reservoir that covers only five hundred hectares, it has a relatively small footprint. Under the Water Grid plan, it will be raised to deliver 40,000 ML more a year.

Murray has a soft spot for Borumba. In the 1990s he was in charge of replacing the dam's old spillway, a job requiring speed and dynamite. 'It's one of my pride and joys,' he said as we contemplated the dam's soot-black concrete. Borumba is a rock-filled embankment 343 metres long and forty-two metres high, with a concrete face on the upstream side and a wide walkway on top. It has all the charm of an urban railway embankment.

Another dam on Murray's pride-and-joy list is Burdekin Falls, south of Townsville, which was completed in 1987. He helped design it and then project-managed its construction, acquiring a master's degree in engineering science along the way. 'It's hard not to be proud of Burdekin Falls,' he says. 'It's hard not to say, "Hey, there I was at a little over thirty, building the biggest water supply dam we're ever likely to have in the state!"'

Paradise Dam, 260 kilometres north of Brisbane, slashes into the Burnett River valley like a colossal surgical instrument. It combines austere curves with scalpel-edged lines and brutal angles. On the upstream side, the wall is vertical; on the

downstream side it angles down in myriad steps, like those of the Great Pyramid. Its overwhelming mass makes it both beautiful and terrifying.

Paradise is Australia's newest large dam. Completed in 2005, it cost Burnett Water Pty Ltd \$200 million. At the time, Burnett Water was headed by Graeme Newton and staffed by a number of other people who've moved on to QWI. Dave Murray was an adviser to the project. He's understandably proud of the end product as a piece of engineering. It never fails to impress, one way or another.

Paradise's spillway stands thirty-seven metres above the streambed and the wall is 920 metres long. When full, it will hold back 300,000 ML of water (more than half of Sydney Harbour's 562,000 ML) and create a three thousand hectare lake forty-five kilometres long.

Murray and I stood on the blinding concrete of the wall-top roadway with a wiry, outgoing bloke named Andrew Maughan. Paradise's service supervisor, Maughan has worked for SunWater, the dam's operator, for twenty years. An awkward gantry loomed above us. This, Maughan explained, was part of the dam's five to eight million dollar fish migration system intended to help the river's aquatic creatures negotiate the vast impediment.

The dam's ingredients include four hundred thousand cubic metres of roller compacted concrete, forty thousand cubic metres of conventional concrete and a million tonnes of crushed rock. This is Australia's biggest compacted concrete dam. Unlike conventional concrete, which needs up to five days to set, roller compacted concrete is laid in thirty centimetre layers in a non-stop operation. 'It's like a road base, a drier mix,' Murray told me. 'Each layer is compacted with small rollers so that it bonds with the layer below. When you've finished rolling one, you put the next one down.'

The fish migration system is designed to move fish both upstream and down. Created with input from biologists, it's an ingenious set-up, as I saw when Maughan showed us the system on a computer screen in a control room. If its efficacy can match his enthusiasm, it may well meet the needs of the river's residents.

When he officially opened the dam in December 2005, Beattie declared it 'raised the bar for environmental construction of dams and land rehabilitation in Australia'. The press release on the event was headed: 'Paradise regained for the environment with dam construction'. But the weather has been hard on Paradise. At the time of our visit, the reservoir was 9.5 per cent full (though it was up to 45 per cent by early 2008). The computer screen showed a mere three to four megalitres of water a day exiting downstream, hardly enough to operate the fishway or run the 2.6 MW mini-hydro plant.

Despite the former premier's enthusiasm, the dam has attracted a torrent of criticism. A big gripe is that the decision to build it was politically based. Even though the Queensland Government had previously dismissed a dam on the Burnett River as

uneconomic, Beattie made it an election promise to counter a National Party pledge to build it. After Labor's 2001 victory, allegations of lack of transparency and whispers about the suppression of a study by the Institute of Sustainable Futures at the University of Technology, Sydney that detailed cheaper and equally effective alternatives to the dam gained widespread currency.

Potential impacts downstream, especially around the river's mouth at the northern end of Hervey Bay, worry commercial and recreational fishers and tourism operators. An international World Wide Fund for Nature (WWF) report in 2005 blacklisted Paradise Dam and five other dams around the world. The report said the Paradise project had failed to meet World Commission on Dams (WCD) guidelines on gaining public acceptance, sustaining rivers and livelihoods and assessing alternatives.

In 2007 a Senate committee inquiring into the Traveston Crossing Dam proposal expressed concern that 'mitigation strategies for endangered species do not appear to have been effectively implemented' at Paradise Dam. In February 2008 a study by federal environment minister Peter Garrett's department cast further doubt on the fishway's effectiveness. It said 'findings indicated only partial compliance with a key condition requiring a fish transfer device (fishway) to facilitate passage for the Queensland lungfish downstream past the dam wall ... The fishway cannot presently facilitate the transfer of lungfish downstream due to drought conditions and low dam levels.'

Little about Paradise Dam has galvanised public opinion more than the plight of the endangered Australian, or Queensland, lungfish. One of the last of a group that lived four hundred million years ago, it uses its single lung to supplement oxygen from its gills when stressed. Once abundant across the continent, it's now confined almost entirely to the Burnett, Mary and Brisbane Rivers.

The dam's fishway was installed to comply with the Commonwealth's *Environment Protection and Biodiversity Conservation Act*, which lists the lungfish as endangered. Scientists believe Paradise Dam has had, and will have, serious consequences for the lungfish. Jean Joss, Professor of Biology at Sydney's Macquarie University, noted that lungfish spawned in slow-flowing shallows with plenty of weed and that under the Act the fish's spawning and nursery habitat must not be destroyed. 'This has not been addressed at all ... It is exactly these features that are lost entirely by permanent flooding resulting from the construction of dam walls. When it is full, it will have permanently destroyed forty-two kilometres of lungfish spawning/nursery grounds.'

Large dams can bring quick benefits, and have played a crucial role in the success of Australia's colonisation and subsequent economic prosperity. Today there are five hundred large (more than fifteen metres high) dams around the country, countless smaller dams, or weirs, and more than two million farm dams.

Large dams can provide reliable water for human settlements, industry and agriculture; they can generate electricity, reduce or prevent flooding and create scenic lakes. However, many experts and laypeople believe the impacts of large dams usually outweigh their benefits. Professor Thayer Scudder, former commissioner on the World Commission on Dams (WCD), a body set up in 1997 by the World Bank and the World Conservation Union to investigate the role of large dams in development, says: 'In some cases, large dams will be necessary to deal with near-crisis and crisis situations as short- and medium-term solutions. But in the longer term, most worsen environmental conditions still further.' Scudder, an anthropologist and now the world's leading expert on the resettlement of people displaced by dams, was appointed to the WCD as a neutral commissioner, neither anti- nor pro-dam. His views remain mixed, and though he believes 70 per cent of the world's fifty thousand large dams should not have been built, he still sees some dams as necessary despite their flaws. 'Large dams remain a necessary development option to deal with the needs of a human population that is expanding beyond the carrying capacity of the world's life support systems. That is the tragedy,' he says.

Some adverse impacts of dams are quick but most usually take decades to emerge fully (witness the Snowy Mountains Scheme). The first impacts are those on people living in the way of a proposed dam and its reservoir. They may have to move, triggering profound distress and causing families and communities to disintegrate. The new reservoir may flood farmland or a natural environment. Many of the drowned river's animals and plants fail to adjust to lake conditions. Weeds and algae may thrive in the nutrient-rich water, while alien fish species, introduced accidentally or for commercial or recreational fishing, may further alter the biological composition of water life.

Downstream, changes in the flow, quality, temperature and sediment load of a river's water usually cause irreversible changes as far as the river mouth and beyond. Fish migration and reproduction, siltation and salinity in deltas and coastal areas are altered, usually lowering commercial and recreational fish catches.

Traditionally, humans have believed themselves to be the only rightful users of river water. However, there's a growing consensus that the environment too has rights and that these could be legally upheld. 'We need to consider rivers as ecosystems that provide goods and ecological services to society,' says Professor Angela Arthington, of Griffith University's Australian Rivers Institute. 'That argument is becoming very powerful globally and is forming the basis of a lot of the negotiations about how you manage rivers and where you place dams – if you do place them.'

There's a growing body of opinion that sees rivers' ecological goods as priceless, Arthington says. 'You can't put a value on them. It's an ethical and moral view that says we're selling biodiversity down the drain if we take ecological goods and services out of the argument.'

As on the Burnett, the lungfish is pivotal in arguments about the Mary. But it's joined here by endangered cod and turtle. Because all are listed under the Act, building Traveston Crossing Dam is a 'controlled action' that needs federal government approval. To gain it, QWI must demonstrate that the dam wouldn't further threaten those species and must indicate how it would help them negotiate the barrier and survive the cataclysmic changes to their domain.

While Murray and I are taking in the view across the Mary Valley from the veranda of No. 1825, he tells me with genuine pride how he's committed to building measures into the dam to allow the threatened species safe passage. There would be a fish transfer system similar to the one at Paradise Dam – something that disturbs many people, given the Paradise fishway's track record. There would also be a turtle ramp. 'The plan is to put in a fairly solid but rough concrete path up the left-hand side of the spillway, with little spots where the turtles can come in,' he says. 'Apparently what attracts them is a light flow, so we'll get a pump that will recycle the water and let it flow down this path. I understand that it's as simple as that ... If I commit to doing it I want to make it work. I want to see turtles crawling up there.'

The turtles would have a fair way to crawl. Traveston Crossing Dam would stand fifty-two metres above its foundations and forty-three metres above the river bed and would stretch 1.6 kilometres across the valley. Stage One, costing \$1.6 billion, would affect 332 properties. Water would be twenty-four metres deep at the dam wall, but the reservoir would be only five metres deep on average. QWI estimates that flooding the valley would wipe out more than four per cent of Queensland's dairy production, and although the dam and its reservoir wouldn't directly affect properties in and around Kandanga, they might be flooded during extreme rainfall.

Stage Two would cost nearly a billion dollars more, make the reservoir 8.5 metres deeper and affect 265 more properties, including some in Kandanga. Many graves in Kandanga cemetery would be drowned. QWI stresses that the second stage is only a possibility, that it would proceed only if required - and even that it is 'mere speculation'. Nevertheless, to keep costs down, it plans to build the dam wall to its full Stage Two height at Stage One so that later it would need only to install bigger spillway gates to raise the water level. The roller compacted concrete main wall would merge into an earth-and-rock embankment at its western end. The spillway, at the eastern end, would have six gates. They would help limit flooding in Gympie, which has suffered serious flood damage at least four times. 'It's no secret that there's potential for bigger gates,' Murray says. 'We've had to design this keeping in mind the ability to raise it in the future. We've done that.'

As I try to absorb the facts and stats, I'm struck by their unreality and the disconnection between them and the wide green valley before me. In QWI's offices, the reverse was true: Nature and living things seemed illusory but the proposed dam

in all its technical magnificence awe-inspiringly real. At that moment I recall the words that Indian novelist and anti-dam activist Arundhati Roy wrote in 1999 when she equated large dams with nuclear weapons: 'They represent the severing of the link – the understanding – between human beings and the planet they live on.'

I begin to notice the signs after I leave Murray and drive south along the Mary Valley Highway. At first there is the occasional plain NO DAM sign. Then, in a paddock beside the road, I pass a white hoarding with the letters FUBT in heavy black. Under them are the words Farmers United Beyond Traveston. Later locals tell me the initials are meant to tell Beattie exactly what they think of him.

Further on, outside Kandanga cemetery, a sign two metres up a gum tree signals WATER LEVEL in black on yellow. This is an eye-opener: I tried earlier to imagine the proposed reservoir, but this really brings it home. I guess that this is Stage Two depth, since it looks as though it would cover part of the graveyard. At the cemetery entrance, hanging beneath the wooden name plaque, a sign pleads NO DAM, DON'T FLOOD US.

Closer to Kandanga, the signs become more frequent. HELL NO, WE WON'T GO, proclaims one. DON'T DAM OUR PRIME LAND, exhorts another. Kandanga, a couple of kilometres off the main road, has a general store, a pub and a community hall in its main street. Beside the store, a sign says DAM U BEATTIE.

Beyond the pub and down the hill, I come to the township's old railway station. The only train that stops there these days is the Valley Rattler, a relic of the steam age that brings tourists. The station building has been prettily done up. At Stage Two its lower half would be under water. The same goes for a large tin-roofed shed fifty metres away. This is the headquarters and information centre of the Save the Mary River Coordinating Group (SMRCG), a coalition of valley residents that came together to fight the proposed dam within days of its announcement.

Anti-dam signs, hoardings and posters clamber over the building's exterior. The tailgate of a ute parked nearby bears the words SAVE THE MARY RIVER FROM A FATE WORSE THAN PARADISE. This isn't the first time I've encountered the premise that Traveston Crossing Dam would be even more disastrous than the dam on the Burnett.

Much about Traveston Crossing is a re-run of Paradise. As with Paradise, the government itself had previously rejected the idea of a large dam at the Mary River site. In 1994 a Department of Primary Industries report considered it 'unsuitable because of high capital cost, inundation of prime agricultural land and displacement of rural population'. There was no further mention of the possibility of a dam at Traveston Crossing until Premier Beattie announced it on April 27, 2006, a month before the release of GHD's desktop review of potential dam sites. It was a bolt from the blue.

Again as with Paradise, politics was perceived to underlie the dam decision, with the government eyeing South-East Queensland's mainly urban electorate in the run-up to the September 2006 state election. Urban voters, the reasoning went, saw dams as the best solution to the water crisis that had subjected them to mounting restrictions. Premier Beattie's dam announcement came three months before the election campaign kicked off. It was a time when drought appeared to be undermining the wisdom of continued rapid population growth, and the government was being hounded by political opponents who claimed it had failed to invest enough in infrastructure to support its growth strategy. The dam, they said, was just a 'panic plan'. Nevertheless, having announced it, Beattie insisted it would go ahead, 'feasible or not'. It looked like a *fait accompli*.

The SMRCG's president, 63-year-old Kevin Ingersole, is a semi-retired management consultant who has been with the group from the beginning. He is also its chief spokesperson, a task for which he is well equipped, being tall, eloquent and with a rich voice that projects well in halls.

Kevin and his wife Sharon, a watercolour artist and a retired bookkeeper, live in the Mary Valley on a twelve-hectare property they bought five years ago as their retirement dream. They have five horses, two goats, two dogs and a cat. 'Our property is directly affected by the dam proposal,' Kevin says. To be precise, the first stage would swamp the lower third of the property, and the second stage would claim much of the rest.

That's one reason Kevin Ingersole is angry. There are others. His anger fuels his activism, the main object of which is to gather information about the dam proposal, analyse it and determine whether it has merit. To date he has found little. 'All the evidence demonstrates that this is a really, really stupid idea,' he says.

Beattie's dam announcement aroused rage and disbelief in the Mary Valley community. 'It was just absolutely bloody despicable,' Kevin Ingersole says. Despicable is an adjective he uses a lot. He is in no doubt that this was a decision taken by a government looking for a quick fix to convince voters that they weren't going to run out of water.

But Beattie denies that politics had anything to do with the decision. 'People are always going to be cynical about government decisions,' he says. 'People in the city were expecting us to provide water so there were hardly any big votes in it for us here. We lost two seats on it. We did this for the right public policy reasons. We were running out of water; we wanted to make sure we built the Water Grid so we never had the problem again. This decision was made because it was the right site, the best catchment area and absolutely necessary.'

Like most valley residents, the Ingersoles heard about the decision second-hand, from friends and the media. There was no warning or consultation with the people affected, they say. They remember insensitivity in the way the government treated

residents – deceitfulness, secretiveness, obstructionism, psychological warfare and bullying tactics to divide the community and persuade land-owners to accept offers from QWI. Kevin Ingersole’s anger has its roots in a lifelong hatred of bullies – and he feels some government officials behaved like bullies. ‘Anything they could do to weaken the resolve of people in this community they actually did. They behaved appallingly,’ he says. As neighbours sold up and left, the Ingersoles watched their community disintegrate. ‘Most people that meant anything to me have gone,’ Sharon says. ‘I’m completely lost. I just don’t want to be here any more.’

The Queensland Government’s handling of the social impacts of the dam proposal on the Mary Valley community disturbed senators conducting the 2007 Senate inquiry. The committee concluded that ‘the poor level of community engagement and consultation appears to have been exacerbated by the fact that information, when sent out, was at times incorrect and misleading, and led to much confusion, uncertainty and stress within the community’. If residents had been better informed about, and prepared for, the dam, they might have been able to reconcile themselves to it. As it was, feelings over ‘the loss of community, loss of lifestyle, loss of family tradition and history, loss of connection with the land’ had led to ‘extreme stress and depression’ within the community, the committee heard. QWI’s failure to prepare the community for the announcement of the dam was ‘symptomatic of a politically expedient decision’, the committee concluded.

The senators noted that QWI had acknowledged the need to treat residents with greater compassion and had gone some way towards addressing the proposal’s social impacts. It had offered counselling through Lifeline and set up a ‘Community Futures Taskforce’ to help the residents adjust to life after the dam. But the committee said these measures had come too late.

In the end, questions about the impartiality of the Senate Inquiry tainted its conclusions. ‘It was a political stunt,’ says Peter Beattie. ‘The Prime Minister [John Howard] knew that, and he admitted that to me. I never took it seriously. The chairman, Bill Heffernan, was talking to me all the time and he was trying to steer a steady course for the dam that was going to be built.’

Gain Watt, the Mary Valley’s Uniting Church minister, believes the emotions that the proposal’s announcement touched off were akin to grief. I talk with the 51-year-old minister in his airy weatherboard church in the Imbil, eight kilometres south of Kandanga. He is on holiday and wearing shorts and sandals, but this does little to detract from his magnetism: his words flow easily, and I can picture a congregation listening rapt to one of his sermons.

Watt realised there was nothing in his training or experience to help him deal with a community event as shocking as the dam proposal. ‘This seemed to have ever-widening circles of impact and I was a bit panicky ... I’ve looked at personal grief, and

I've been involved in various crises, and I think grief is definitely a large part of what's happening here.'

Sydney University historian Peter Read touches on this issue in his book, *Returning to Nothing: The meaning of lost places* (Cambridge University Press, 1997). 'Grief for dead places seems much more analogous to grief for dead people than professional carers have allowed,' he writes. 'We need a second Elizabeth Kübler-Ross to advance place-bereavement as a continuing theme of contemporary distress. It is now time for environmental and heritage assessments to encompass these profound emotions.'

In Watt's view, one of the factors exacerbating the announcement's impact was the lack of warning and information. 'The real damage was done at the start of the process by having no consultation and just dropping it, like a bombshell. Then the aftershocks just kept coming week after week with further announcements. The way I've responded has been mostly with anger, and that was largely because of the sense that we were being manipulated, that we as a community were being used like a pawn on a chess board for the political advantage of a powerful government.'

Peter Beattie says he understands the valley residents' anger. And he doesn't deny there might have been scarce or wrong information about the dam when it was announced. This was because the kind of information that residents wanted – such as the precise water level and which properties would be affected – wasn't available at that early stage. The dam announcement was the beginning of a process, he says. 'We went up there and announced we were looking at the site. I flew over it in a helicopter with the local mayor and announced it. We then went back and had a public meeting to brief people. We said we were examining it as a site, that we were doing work on it and doing tests on it ... So, in other words, we didn't hide the fact we were going to look at it.'

The public meeting at which Beattie outlined the dam plan to residents took place at Gympie in July 2006, when he faced an angry crowd of fifteen hundred. It was a difficult encounter that lasted for several hours, during which the Premier sat alone at a table, a water bottle and some papers by his side. 'When you make tough decisions you've just got to face the people who are affected, no matter how difficult it is. You can't run away. So I was concerned about the people that were there, because they were really worried about some issues. I was genuinely trying to impart information, trying to reassure them they would be treated properly.'

But above all, Beattie says, he needed to show that the government was serious, that the dam was the best solution for providing water. 'It was difficult. Was I scared? No, because I had faith in Queenslanders that, while they were angry, they wouldn't resort to anything improper or violent. So, while there were some concerns, I didn't share them. I'd been told by the mayor that there was a story going around that I was wearing a bullet-proof vest and that there were all sorts of threats to my life. I wasn't wearing a bullet-proof vest and I wasn't personally concerned.'

Beattie reiterates that he was only interested in talking to the people, that he could understand their worries and wanted to help as much as he could. 'I wouldn't like my house resumed for a dam either,' he says.

But he does not accept accusations that his government treated residents insensitively after the announcement. He said the government bought potentially affected land during the consultation process and before federal approval purely out of compassion. 'That was us trying to bend over backwards to say to people, "If you're stressed out of your mind by this thing, we'll buy your property." That wasn't well understood, but that was actually us being extraordinarily sympathetic to the local people.'

You can sense anger everywhere in the valley. Some residents express it openly, others keep it to themselves and some, like Kevin Ingersole, use it to fuel their struggle against the project. Glenda Pickersgill, 47, is another who has converted her initial shock, rage and sadness into slow-fuse resolve to beat the dam. Seeking as much information as possible and disseminating it throughout the community is her response to the lack of information from the government after the announcement. 'We tried to get information, we tried to get facts about that decision-making process,' she says. 'But we still have not received a decent explanation from the government as to why the decision was made to go ahead with this proposal.'

Pickersgill speaks in measured tones, as though her familiarity with her topic is borne on an undertow of single-mindedness. She wears her blonde-streaked hair in a plait over one shoulder. Her face is lightly care-lined; her skin tanned and her build strong, as one might expect in a farmer and champion kayaker. With help from her 78-year-old father, she breeds cattle on sixty-eight hectares beside the Mary River about a kilometre upstream from the proposed dam site. Her father bought the property thirty years ago and she's owned it for the past twenty. Her house and virtually all her land would be drowned at Stage One. Despite this, she refuses to sell to QWI.

As we bounce through her paddocks in her 4WD, she tells me more than once how much she loves this place and its lifestyle. After a 1992 flood caused massive bank erosion, she says, her family decided to rehabilitate their stretch of riverside by fencing it off and planting native vegetation. Fifteen years on, the rainforest that fringed the river before cattle arrived is returning.

Beside the river, where it's wide and slow and clear, we sit under spreading casuarinas and weeping lilly pillies and contemplate the sweep of green-clad banks. The Mary here has completed about a third of its three hundred-kilometre run to the sea. Rising near Maleny, about eighty kilometres north of Brisbane, it flows through several small settlements and three towns before emptying into the Great Sandy Strait, at the southern end of Hervey Bay. Pickersgill has explored many kilometres of river on foot and by canoe and spent more than two years mapping Mary River cod habitats in the catchment for the WWF.

'You've got the three iconic species in this stretch of the river – the Mary River cod, the Mary River turtle and the lungfish. In September – October, lungfish spawn all through here. They need particular water plants to attach their eggs to, and it's only in shallow, well-aerated areas that you have the special conditions to allow them to breed. Of course this breeding area will disappear if the dam is built.'

She is acutely aware of how the dam would affect the Mary Valley, both upstream and downstream of the wall. She talks of the threats to river creatures, the risks of extinction, the likely aquatic weed build-up in the reservoir and river, the high evaporation that will be inevitable from the broad, shallow lake and the seepage likely in the alluvial valley floor. She wonders how a diminished river will impact on Hervey Bay, on its fisheries, on World Heritage-listed Fraser Island and on wetlands that have been listed as internationally significant under the 1971 Ramsar Convention. It irks her – and other valley residents – that all the water extracted from the proposed reservoir would be piped to Brisbane. Of the 153,000 ML stored in the lake at Stage One, more than 70,000 ML would be pumped out every year. At Stage Two the lake would hold 570,000 ML (more than Sydney Harbour) and yield anything up to 150,000 ML a year, enough for seven hundred thousand people every day. The government says it can take this much water but still maintain 85 per cent of the Mary's flow at its mouth. Critics claim this figure is misleading because it applies to the mouth, which is downstream from tributaries that swell the flow. Immediately below the dam wall the flow would be much less.

These issues were aired in the Senate Inquiry. Although the committee delivered two anaemic final recommendations, appended comments by some senators were more forthright. While thanking Queensland public servants for their evidence, four senators said they couldn't help feeling they'd been watching 'an exercise in trying to defend the indefensible'. They added that the inquiry left them with the conclusion that Traveston Crossing Dam 'is a political response to a serious problem, but is not one which will solve the problem'.

The EIS addresses the same issues but, in the view of many critics, less impartially. They say the sixteen hundred-page tome (accompanied by four thousand pages of technical reports and appendices and a glossy hundred-page overview) is little more than a promotional document. The EIS was produced for QWI by Sinclair Knight Merz, a consulting firm with offices around Australia and overseas. Its conclusions on most issues are overwhelmingly positive. Traveston Crossing Dam, the EIS says, is the cheapest means of securing water supply into the future. It would boost the regional, state and national economies and encourage the flow of investment into Queensland. The EIS says downstream impacts would be negligible and upstream impacts could be managed in a way that the dam might even improve the fortunes of endangered species. To help those creatures through the crisis, QWI would build a \$35 million Freshwater Species Conservation Centre beside the proposed reservoir.

This would 'ensure the long-term future and improve the status' of the three iconic aquatic creatures. On the social and local economic impacts, it's a similar story, with QWI confident that the trauma local residents have experienced can be soothed through a range of measures.

Queensland Premier Anna Bligh has said the EIS vindicates the decision to dam the Mary and confirms her government's view that the project is the best solution for securing future water supply. Even so, criticism of the EIS has been broad-ranging. A 2007 report by the Institute of Sustainable Futures (ISF) at the University of Technology, Sydney says a suite of alternative measures makes the proposed dam 'neither necessary nor desirable'. Responding to the EIS, the institute reiterates that assertion. Its director, Professor Stuart White, says: 'The environmental impact statement has several glaring omissions that constitute a failure to address adequately the Terms of Reference, and this throws into question the recommendation to proceed with the dam.'

Chief among the omissions, White says, are that the EIS fails to properly consider low-cost alternatives to the dam and, in its greenhouse gas calculations, neglects to take into account the pipeline that will carry Traveston Crossing Dam's water to Brisbane. The Northern Interconnector Pipeline will be ninety kilometres long and will need to move water for up to seven hundred thousand people a day using coal-generated electricity. Though an integral part of the dam's infrastructure and responsible for more than one hundred and forty thousand tonnes of carbon emissions a year, it is absent from the equation.

'It is a massive sleight of hand to pretend that the pipeline and its associated pumping costs are not part of the development,' White says. Even worse, he says, is the fact that the EIS applies only to Stage One and ignores Stage Two. Such a 'split referral' avoids the need to advertise the full litany of the dam's long-term impacts. 'That's incredible. It's so dodgy,' says White.

Having reviewed the EIS and the public's 16,800 submissions on it, the Queensland Coordinator-General asked QWI early in March 2008 to prepare a supplementary EIS to address the issues the public raised. Federal environment minister Peter Garrett will rule on the proposal after the supplementary report has been drawn up.

The psychological pressures on residents living in the project's shadow are too enormous for outsiders to imagine. Whether those residents choose to leave now or linger as long as they can depends on how willing they are to tolerate the pressures. Some people, seeing the dam as inevitable, take what they see as a practical course.

John and Margaret Cochrane run a dairy operation on one hundred and forty hectares beside the river five kilometres upstream from the proposed dam site. With a thousand milking cows and seven employees, it's one of Queensland's biggest dairy farms. Most of the Cochranes' land would disappear at Stage One, though the house

and the milking shed would stay dry. The couple decided to sell their farm to QWI and lease it back until the reservoir rises. It was the kind of deal that a number of valley residents were striking.

John Cochrane, a lifelong dairyman who has owned this farm for thirteen years, considers himself a realist. 'I said to Margaret: "We can dig our heels in and say we're not going anywhere, but I think that's the wrong choice because we're in the ring with Muhammad Ali here." We decided to take our money. So we've taken a commercial view of it.'

He has no doubt the Mary Valley is the wrong place for a dam – because it's shallow, and productive land will be lost. 'Without question it's some of the best agricultural land in Queensland. It's land we should be preserving, so we can keep feeding the country.'

The Mary River has been feeding people, spiritually and physically, for millennia. Traces of bora rings – sacred places where initiation ceremonies took place – can be seen on river flats. Such links with the river's Aboriginal past excite Dr Eve Fesl, anthropologist, linguist and an elder of the Gubbi Gubbi people, the valley's traditional owners. Her mother was among the last of the Gubbi Gubbi born beside the river, which her people called Mumabula.

When we meet on a riverbank, Fesl is wearing a long ceremonial dress in earthy russets and yellows and patterned with giant flowers. For her, Mumabula is rich in cultural connections and vibrant with the sprits of her ancestors. Mumabula touches 'our birth places, the sacred pools and spiritual places as she flows. In her womb she bears Dala, who, like a whisper from a long forgotten past, symbolises the wisdom of our elders ...'

Dala is the Gubbi Gubbi name for the lungfish. 'We were told never to hurt it and to protect the places where it bred and to treat it with reverence. We didn't know why we were told this, but now we know there's a very sound scientific reason why that animal is so important.'

After it announced the dam, the state government urged the Gubbi Gubbi and two other Aboriginal groups to sign an Indigenous Land Use Agreement allowing it to flood their traditional lands in return for \$3 million. The other two groups signed. Fesl was incensed that her people had been expected to sign away their cultural heritage before the dam had received the go-ahead from the Federal Government. 'Our memories, our culture, the bones of our people are here in the valley,' she says. 'There's history, there's connection to places, there's being part of the earth. These things are worth more than money.'

Money and the obsession with economic and population growth lie behind many destructive events in the world, including the building of large dams such as Traveston Crossing Dam, Fesl says. 'The Earth has always given us what we want and yet we are watching it die, mostly for the almighty dollar.'

Heading north on the Bruce Highway, downstream from the proposed dam site, I get brief glimpses of the Mary, mostly wide, green and dawdling. On the edge of Tiaro township, the administrative centre of Tiaro Shire (population 4,800), the river flanks Petrie Park, a shady camping and recreation area. The river is about fifty metres wide here and almost still. It has another eighty kilometres to go before it reaches Hervey Bay.

As families mess about in boats in the background, I talk with sixty-two-year-old Darryl Stewart, a pig farmer and shire councillor. He has a businessman's non-nonsense air, an effect softened by a greying beard and moustache. His resonant voice would be useful in the council chamber.

The Mary River is not pristine, and Stewart describes what ails it. The problems, he says, stem from a barrage built in 1982, about twenty-three kilometres downstream at the behest of farmers, mostly sugarcane growers looking for more irrigation water. The barrage acted as a dam, blocked upstream tidal movement that once reached Tiaro and created a permanent reservoir of fresh water that could be pumped to towns and farms.

The barrage has had dire environmental impacts even while it has provided huge benefits, Stewart says. Where previously the river rose and fell twice daily, now it's always still and wide – and getting wider and shallower all the time as the banks slump and erode. The number of fish species in the river upstream from the barrage is nearly 70 per cent lower than on the downstream side, and aquatic weeds such as water hyacinth and salvinia are thriving.

Stewart believes a dam at Traveston Crossing would worsen these impacts. Water extraction at Traveston Crossing would stem the Mary's flow and reduce the number and intensity of the floods that flush the river and keep it healthy. A large loss of flow would have catastrophic impacts on society in the region as well as the natural environment. With less water for homes, industry and farms, the regional economy would slump. 'A lack of water is going to mean a downturn in cropping production. Maryborough Sugar Factory is estimated to put \$40 million a year into the Maryborough economy. Without irrigated cane, that figure is likely to drop by about half and that would seriously affect the viability of the factory. It's one of the major employers in Maryborough, so job losses are going to be pretty huge.'

If farm production fell, farmers would lay off workers. This would hit towns like Tiaro, where small business is vulnerable. Stewart's intensive pig-rearing operation relies exclusively on the Mary for water. 'If there's no water in the river, our business is no longer,' he says. 'The Mary is the lifeblood of the community in this catchment. Damming it will have a huge social effect. It's one of the dumbest ideas I've ever heard.'

Beyond Maryborough, the Mary River does a ninety degree jink to the south-east, then loops back twice on itself before widening out into Great Sandy Strait about fifteen kilometres south of the city of Hervey Bay. It ends officially at River Heads, a terminal for Fraser Island ferries and a picnic area. Here, to the clank and roar of boats being launched at the ramp nearby, Roger Currie, an environmental scientist contracted to Maryborough City Council and a member of the Wide Bay Conservation Council, explains why worsening conditions in local inshore waters will worsen even further with a new dam on the Mary.

With a dense white beard and bushy ponytail, Currie looks like a character from *Lord of the Rings*. He is, nevertheless, very much of this world. He has lived and fished recreationally hereabouts for more than thirty years, and thus has a good historical perspective on the area's fisheries.

'A statistical analysis of the fisheries yield in the region over the past twenty-five years shows a significant decline,' he says. Dams on the Burnett and the barrage on the Mary are partly to blame because they reduce the flushes that bring huge quantities of nutrients into the Bay and stimulate fish breeding. There's every reason to believe Traveston Crossing Dam would worsen the situation. 'This area relies enormously on recreational fishing. It brings in about \$30 million a year. This will be under threat as a result of the dam due to the reduced flows and the impacts on fisheries productivity. There will be an economic loss to commercial fishing too. For instance, scallops are totally dependent on nutrient flow from the river. So the scallop industry is under threat, as is the fledgling pearl industry. Both have been supported by the Federal Government.'

While scientists and fishers are sure that reduced river flow and smaller, less frequent flushes will have detrimental impacts on fisheries in Hervey Bay and the Great Sandy Strait, no one is sure how, or whether, flow changes will affect the salt content of inshore waters. Some believe altered salinity may impact on whale numbers in the area. Whale-watching, recreational fishing, the Ramsar values of the wetlands and the world heritage values of Fraser Island just across the strait all buttress Hervey Bay's tourism industry. The threat of change that many people believe will be for the worse hangs over them.

This preys on the mind of lawyer Steve Dixon, president of the Hervey Bay Chamber of Commerce. Since the 1960s, Hervey Bay's population has grown more than tenfold to fifty-five thousand people. This growth has been driven largely by a search for a particular lifestyle, Dixon says. 'That lifestyle is interwoven with our environment. Most people who come here, whether as new residents or visitors, have a fishing rod in the boot. The recreational fishing industry is substantially larger than the commercial fishing industry here. This city is built around tourism.'

Dixon recognises that the \$1.6 billion due to be spent on the dam would benefit local business, but he doubts that the gains would offset the losses from the dam's

impacts. 'The issue is: what will the damage be when you start reducing flows from River Heads? I think it will be substantial. We really want to see good reasons for building this thing.'

Joe McLeod, deputy president of the Independent Trawler Association, is a commercial fisherman who reckons he has plenty of good reasons why the dam should not be built. A compact, chunky bloke with amazingly fair skin considering his lifestyle, he has been working out of Tin Can Bay, at the southern end of Great Sandy Strait, since his twenties. He tells me that over this thirty-year period he has seen the increasing restrictions on the flow of the rivers reduce the size and frequency of big flushes. Ask older fishermen, he says, and they'll tell you that a year or so after a big flush there is a bumper crop of fish, prawns and scallops.

Fresh river water also reduces salinity in bays and inlets. Many sea creatures need less salty water during breeding and growth cycles. Around the mouth of the Burnett, McLeod says, only species that tolerate very salty water have survived; others have disappeared. The banana-prawn industry has been particularly hard hit.

Although freshwater run-off from Fraser Island may partly compensate for reduced Mary flow if a dam is built, 'no one can convince me that the marine population will stay the same,' McLeod says. 'Some species will dwindle; others will be severely impacted, the way it's happened already with the Mary River barrage. The carrying capacity will definitely be reduced.'

QWI says most of the direct negative impacts of a dam at Traveston Crossing would be confined to the 'local area'. Positive impacts – water security and flow-on economic benefits – would mostly be felt at 'regional, state and national levels outside the area of negative impact'. This is logical, given that all the water extracted from the dam will leave the catchment. QWI predicts increased gross regional product of \$244 million by 2013 and increased 'national welfare benefit' of \$3.14 billion as a result of the dam.

Judging by the geographical spread of people I've consulted about the dam, the QWI adjective 'local' is somewhat imprecise. If the benefits are to be felt only outside the 'local area', the project would defy one of the WCD's principles on large dams – that 'affected people in reservoir basins, downstream of dams and in catchment areas should be project beneficiaries'. More than one person I spoke with raised the matter of compensation in this context: would people downstream be compensated if their lives were adversely affected? The question can't be answered while QWI continues to insist that downstream impacts would be negligible.

Putting all this aside, let's assume that the perceived disadvantages of Traveston Crossing Dam are enough to kill the project. How, then, do authorities guarantee future water supply for growing populations?

The answer, according to Stuart White and others, is a suite of measures, some already in use and all cheaper in total than building a large dam. They embrace desalination, recycling and domestic water tanks, together with a far bigger push to reduce water use. This so-called 'demand-management' approach is key. It includes retrofitting existing buildings with water-saving devices, ensuring new buildings incorporate them, water efficiency standards for water-using appliances and fixtures, and promotion of water-thrifty gardens. New developments might incorporate ultra-high water conservation measures that could save up to 80 per cent of the water currently used in households. The Institute for Sustainable Futures says demand management could save nearly 190,000 ML of water a year in South-East Queensland by 2051. Compare this with the 150,000 ML a year that Traveston Crossing Dam's Stage Two is projected to deliver.

The trouble is, these strategies are still beholden to the principle of perpetual growth. Growth is the problem here – growth of economies and populations, growth and the almost divinely ordained dogma that there are no limits to it. Human population growth is behind the push for ever more dams, in South-East Queensland, in Australia and around the world. Human population growth lies at the heart of nearly all the environmental problems we face today. 'Decision-makers see more people as a bigger empire for them to preside over. They see the rate of growth as an index of their success,' says Ian Lowe, emeritus professor of science, technology and society at Griffith University and president of the Australian Conservation Foundation.

In terms of water supply, the standard model has always been that, as a population grows, authorities keep building more dams, Lowe says. 'I think the Queensland government genuinely believes that population growth is a given, that it's visited upon us by Martians, that it can't control it, or it doesn't want to. And a consequence of a growing population is that you need to supply more water, more electricity, more sewage treatment and so on.

'To be against growth is like being against motherhood or revealing that you're a card-carrying member of the Communist Party. But the implicit assumption that growth is always good does need to be questioned.'

Logic says there is no absolute need for economies to keep growing, according to Lowe, and many reputable economists acknowledge this.. The question is whether we can stubbornly keep on growing in the face of signs that our civilisation may collapse as a result.

Some economists see the signs but believe that, if the world can somehow have economic growth that doesn't cause environmental problems, all will be well and growth can continue ad infinitum. In his interim report on climate change released in February, economist Professor Ross Garnaut muses on just such matters. He says it is 'neither desirable nor remotely feasible' to curb growth and deny higher material

standards to people around the world. Instead 'the challenge is to end the linkage between economic growth and emissions of greenhouse gases'.

Commenting on this, Ross Gittins, the *Sydney Morning Herald's* economics editor, wrote: 'If the world can achieve such a feat it will rival the Seven Wonders of the World combined. If we can't, the globe will have hit its limits to growth.'

Peter Beattie's take is pragmatic. As ex-premier of Australia's fastest-growing state, he agrees that growth is problematic. But however much he'd like to limit it, he sees no way of doing so. 'We don't have much choice,' he says. 'People are moving here – we're getting eight hundred people a week coming from Sydney – but I can't put up a Berlin Wall and say, "You can't come here. Bugger off!" This is Australia, not a different country. It's legally impossible.'

All the state government can do is make sure that newcomers settle in designated areas, Beattie says. The market will eventually ensure, by driving house prices up, that the influx slows. Meanwhile the dam engineers will keep delivering what they have been trained to deliver – big expensive infrastructure.

Heading back towards Brisbane, I detour from the Bruce Highway for a last look at the Mary. A hundred metres or so past Traveston Crossing Bridge, I throw a right and take a dirt track down to the river's edge. There the track disappears into the weak-tea water, to emerge thirty metres away on the far bank. The water is so clear here that I can see the gravelly-sandy bed all the way across. A little further upstream, the bottom is streaked green with waterweed that waves in the flow. As I take in the scene, some of the things that people told me about the river's ecology come back to me. 'Just the place for a lungfish,' I say to myself. ■