SAVE THE VALLEYS / CONONDALE RANGE COMMITTEE

The Project Manager – Traveston Crossing Dam Project
SEQ Infrastructure (water)
The Coordinator-general
PO Box 15009
CITY EAST QLD 4002

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Re: Draft Terms of Reference for Environmental Impact Statement
Proposed Traveston Crossing Dam

TRAVESTON DAM - THE EFFECTS OF DAMS ON RIVERS, BANKS, & RIPARIAN FAUNA & FLORA

BAROON POCKET DAM - A CASE STUDY.

In 1994, in answer to the Goss Government's plan to build a dam in the Upper Mary, I collated the observations of farmers of riparian properties every few kilometres downstream of the Baroon Pocket Dam, on their view of the state of the Obi Obi Creek, and the Mary River, as affected by the dam. The Baroon Pocket Dam lies in the upper reaches of the Obi Obi Creek, in the headwaters of the Mary River system, the Obi Obi joining the Mary some 30 km below the dam wall, at Kenilworth. The observations of these farmers tended strongly to compare the Obi and Mary before and after the dam was built in 1988. While their comments were neccessarily anecdotal, they nevertheless created a perfectly coherent picture of severe riverbank losses and degradation, stream-bed siltation, poor water quality, fish loss, and killing of riparian pasture subsequent to the dam.

It will be the contention of this submission that such effects are not limited to Baroon Pocket Dam, but are to a considerable degree generic to any dam with a spillway - as DPI-WR finally admitted, banks slumping below Wivenhoe for example - and in particular, highly applicable to the Traveston Dam site lower down the same catchment, as the government also implicitly admits, when it says that the Traveston Dam will lower the flood peak for Gympie by 4 metres. As anybody who has ever paid a mortgage knows, if you lower the payments, you pay them for longer. The water does not simply go away, no matter how you configure the spillway, or how fancy you make the floodgates on the dam.

DAM CAUSING EXTENDED FLOOD PERIODS.

The main cause of these effects were seen without exception by the farmers interviewed, to be a result of the extended flood periods suffered since the building of the dam.

OBI

John Cutmore (farming a lifetime, 12 kms. below dam): *"(the flood) stays up longer - half-peak for 3 days - 1 to 2 days previously*".
John Pryor (9 years *, 14 km b.d.): *"12 hour flood now stays up 36 hours*".
John English (33 years, 15 km b.d.): *"peak 2 foot less, but takes half a day to get away. Peak would only hold for half an hour, now several hours, and so slow to go down. Still 6 foot of water over the spillway weeks after the flood".*
Friedland (28 years, 16 km b.d.): "*18-24 hour flood before is now 48-60 hours. Bank overflow was 6-8 hours, now water is over no. 2 crossing for 36 hours".*
Grundy (17 years, 17 km b.d.): "*3 times as long to get away. Before the floods were higher but no damage".*
Col Loweke (44 years, 26 km b.d.): *"12-15 hours water used to be almost all gone. Now stays 3 times as long. 1956 flood a monster but never damaged".*

The farmers on the Mary above the confluence with the Obi, hence unaffected by the dam, reported no change in flood patterns. Fleiter (3rd. generation, 19 km above the Obi confluence) is typical: *"No unusual losses .. water still gets away in 12 hours".*

* The number of years farming the property were calculated to 1994.

MARY

However, the farmers on the Mary below the Obi confluence (30 km. below the dam, at Kenilworth), and hence downstream of the dam, report the same change of flood pattern - and consequent damage, tapering away to nil about 57 kilometres below the dam wall.

Paulger (2 generations, 34 km b.d.): *"*(average flood) *used to be up and gone in 8 hours".*
Parker (20 years, 38 km b.d.): (flood lasting) *"36 hours to eddy around tree roots digging out the soil".*
Trace (25 years, 45 km b.d.): *"Change since the dam; floods last more or less 3 times as long. Dam holding the water back".*
Schmidt (15 years, 48 km b.d.): *"Floods stay there ... double the time".*
Smith (39 years, 57 km b.d.): *"Floods getting away as quick".*
Olsen (3rd generation, 65 km b.d.): *"Might be a bit up".*

In a possibly worrying anomaly, two farmers well below the dam wall, Trace at 45 km b.d., and Schmidt at 48 km b.d., both reported an increase of flood height since the dam, Schmidt estimating a 2-3 metre increase.

DAMAGE AS A RESULT OF EXTENDED FLOOD PERIOD.

In the 1989 (Anzac Day) flood, and that of February 1992, rainfall figures for the Upper Mary above the confluence, and the Obi catchments were similar, while while the duration of the floods on these two rivers were not. The Obi floods broke the banks and stayed there *"for three times as long*" as would normally have been expected. The *"metering effect*" of the dam's spillway, while it takes *"a couple of feet*" off the peak of the flood, keeps the water coming three times as long. Flood mitigation was one of the inducements offered to the farmers downstream. In the words of one farmer on the Obi: *"Wouldn't see any more big floods... Bullshit !".* Other farmers used other terms for the same phenomenon !

With the new extended flood period has come considerable damage.

SUPERSATURATION OF THE BANKS.

The Obi - more a river than a creek - had always been thought of as *"the best stream in the area*" (English), because of its lowish banks of rainforest loam, rock and boulders, well treed through much of its length. It also has an excellent rainfall catchment from Maleny to Mapleton. In the natural course of floods, while the odd bit of damage might occur, the river was the better for *"a fresh*". The Obi had withstood - and taken its character from - the monsoonal floods of the of the '60's and '70's for instance, whereas the floods since 1988 have caused considerable damage.

TREE LOSS

"Turning the banks to porridge" was one of the comments on this new extended flood duration. Critically, the tree species have not naturally selected themselves over the course of time, to deal with liquefied soil attacked by a fast moving current - if indeed there are species which could.

Grundy (17 km b.d.) *"Lost trees, but not before the dam, 3 in 100 metres".*

As the banks of the Obi get higher and more friable further downstream, the tree losses get worse:
Loweke (26 km b.d.) "*lost 2 half-chain strips of 45+ year old trees in the last flood. The first flood eroded underneath; the second flood, the trees just slid down the banks".*

By the time the extended flood duration reached the 30 foot high banks - with their highly friable sandy soil - of the Mary properties, the damage became catastrophic.

The Paulger's farm (2 generations, 34 kms b.d.) on the Mary lost almost every single tree on one side of the river: *"in the April (Anzac Day) flood of '89, lost dams and 1 mile of 60 to 100 year-old trees. The banks are now vertical 30 foot cliffs*".
Parker (20 years, 38 km b.d.) in the February '92 flood "*lost 30 mature silky oaks, black beans, she oaks off half a kilometre. 250 metres used to be completely treed, now there is not one tree left".*

As Jack Walker, from one of the first families to farm the Obi, said: *"There's not much point* (for the irrigators) *having a dam if you're going to wash all the land away".*

BANK INSTABILITY

Tree Loss in turn accentuates bank instability, where the tree roots no longer bind the bank structure. The classic pattern is "the slump", where a section of river bank sheers away from the rest of the bank, and drops, to be lost in that flood or a later one. This pattern is already evident on the Obi with its lower, often well-treed banks:

Cutmore: *"4 acre block lost* (below Cutmore's property)".

Grundy: *"slumping every 50 metres"*.

Pryor: *"About a hectare lost from two places. Banks slumping"*.

... but again, on the higher sandy banks of the Mary downstream, the effects are dramatic:

Paulger's comment, that his banks, after the loss of all of his trees over one mile on one bank, are now for much of their length *"30 foot vertical cliffs"*, is echoed by the Parkers, 4 km downstream.
Parker: (20 years, 38 km b.d.) "*250 metre stretch* (lost all its trees) *used to slope down to the river, now a 30 foot vertical cliff.* (There is*) also a big slump/washout 100m X 25m with a lot of dead trees."*
Trace (25 years, 45 km b.d.), observing that the "*trees are not holding the banks,* (lost) *15 feet of 30 foot bank since the dam. If monsoonal weather comes back there will be hell to pay"*.

RIVER SILTATION.

In addition to bank and tree losses, and as a further result of both, some of the often huge quantities of soil lost from the river banks, settle on the river bed, radically altering the nature and quality of the stream. Further, the dam having slowed the flood, the natural holes are not being scoured clean or dug out of the silt and smaller rocks by the flood waters. This causes a shallow stream, lacking its natural progression from hole to riffle, to hole again.
In addition to this, the water breaking the banks and staying up 3 times as long, causes severe damage to the farmers' best grazing - the river flats - by drowning the grass, both with water and the silt deposited.

English (15 km b.d.) *"In 20 years not seen anything like it. Silt deposit killed all the grass last flood. Passlow's swimming hole filled in"*.
Friedland (16 km b.d): "*Swimming hole opposite the big fig used to be so deep no-one could touch bottom ... now it's barely 6 foot at the deepest spot"*.
Grundy (17 km b.d.): *"Holes filling. Present floods not so fast & don't clean holes out"*.
Loweke (26 km b.d.): *"Last flood flats stayed under 38 hours - rotted all the kikuyu. Holes only half as deep"*.

Downstream on the Mary, the Paulgers lost their river flat dams in the April '89 flood, due, they felt, to the abnormal prolongation of the flood.

Russell (34 km b.d.): *"Holes 8 to 10 feet deep, now can walk across it"*.

WATER QUALITY, AND FAUNA.

In addition to, and because of, the changed nature of the stream, the water quality in times of normal flow has changed for the worse, and this is adversely affecting the river's fauna. Water releases from the dam do not give the same amount of water as the Obi was used to, and occur at times that, for instance, confuse spawning fish. The dam is starving the creek of water, when it is not drowning it. The lack of natural stream bed topography combines with the *"stinking .. scummy .. deadish .. slimy"* low-flow water quality, to make a creek that was once noted for its abundance of Mary River Cod - 30-pounders were not uncommon - almost devoid of riverine fauna. Four Obi farmers used the very same words:*"The dam has stuffed the creek"*.

Cutmore (12 km b.d.): *"Looks dead in Summer, grey sludgy look. Water weed disappears. Stinks Autumn/Winter after big rains. Complete absence of mullet* ('07)*;* (pre-dam) *a neighbour came in with an 18 lb* (Mary River) *Cod, skiting about it, his friend goes straight out and catches a 22 pounder"*.
Pryor (14 km b.d.): *"No flow half the time, not enough to keep the creek flushed. Doesn't move. Scummy. Swam in it before the dam, but wouldn't feel like doing that now"*.
English (15 km b.d.): *"Deadish feel. Summer mullet get distressed, get ulcers. Swim up and down the surface like a caged cat. Wouldn't drink it now"*.

Friedland (16 km b.d.): *"Each release from dam dragging dead matter out of the bottom of the holes into the body of the stream. Fishes' natural instincts shot by sudden rises and falls. Don't know whether to make their nest in deep water. Bream haven't spawned at all this year".*
Grundy (17 km b.d.): *"Slimy silt. Muddy taste. Platypus gone. Mullet less. Lungfish gone. (Mary River) Cod gone. Were so many creatures down there".*
Loweke (26 km b.d.): *"Water often putrid, stinks .. dirty grey to rusty colour. Becomes stagnant in low flow. Particles in water".*

Because the Mary below the confluence has its own water supply - i.e. the upper reaches of the Mary River - the water quality issue is not so dramatic as on the Obi. It is nevertheless an issue, since the Obi used to provide anything up to half the flow of the Mary below the confluence at Kenilworth.

LOW FLOW BETWEEN FLOODS.

The role of healthy riparian tree cover in maintaining the bank structure, is further compromised by the lack of water to the tree roots between floods. The same applies to other "structural" vegetation.
Cutmore (12 km b.d*.) "Normal flow times - this is when people talk of the dam stuffing the creek".*
Pryor: (14 km b.d.): *"Toe of the bank is always dry*".
Grundy:(17 km b.d.): *"No ordinary flow since the dam - banks starving. Constant low flow now".*

TRAVESTON - THE 12 DAY FLOOD.

The 1999 flood lasted 4 days in the Traveston/Gympie area. A tripling of that flood would mean a flood that lasted for 12 days, not only for the farmers downstream of the dam, BUT FOR GYMPIE - 30 km DOWNSTREAM - AS WELL.

The floods in the Upper Mary get away faster because the land is steeper, and the fall of the watercourse is greater. For this reason the 1999 flood broke the banks for less than 12 hours on Harper Creek (un-dammed) at the very top of the catchment. On the Obi where it flattens out, a bank-breaking flood lasting 12 hours before the Baroon Pocket Dam, lasts 36 hours after the dam.

In the same catchment, under this flood regime, the damage that would be inflicted below the Traveston Dam would be enormous. The 17 metre alluvial river banks at Dagun Pocket for instance, could be expected to collapse spectacularly; the currently fish-filled holes would silt up, all but wiping out the fish and fauna population; trees currently maintaining bank stability would be lost; vast areas of river flat grazing would need to be re-sown after each flood; and the health of the river, and its water quality in times of previously normal flow, would be severely compromised.

It would be would be hard to ignore the lessons of a 12 day flood downstream of a projected dam at Traveston. It would also be particularly hard to ignore the effects of a 12 day flood on Gympie - this would start to evoke visions of New Orleans.

Farmers on the Mary below the Traveston site might be well advised to heed the words of that farmer on the Obi (above) on the subject of flood mitigation ! And those planning the dam would be well advised to look hard at the river downstream of the dam site, forecast some of the unavoidable damage, and model the Extended Flood Durations.

John Braby, Save The Valleys
Project Officer, Conondale Range Committee