

**THE LEGISLATIVE COUNCIL SELECT COMMITTEE ON THE MANAGEMENT OF THE TAMAR AND ESK RIVERS MET AT HENTY HOUSE, LAUNCESTON ON FRIDAY 6 FEBRUARY 2009.**

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**Mr ERROL STEWART** WAS CALLED, MADE THE STATUTORY DECLARATION AND WAS EXAMINED.

**CHAIR** (Mr Finch) - Welcome, Errol.

**Mr STEWART** - I have prepared a two-page document that I will hand to you. I thought the terms of reference were fairly tight in that there has to be a reason that there should be a single body and no other body without any technical information. I guess when you read it you have to go back to the terms of reference. I think they are a little tight and hopefully with a bit of licence we might be able to open that up as we go through.

**Mr WING** - They are deliberately tight so that we are not investigating the causes and solutions, et cetera, in the hope that we could have a report earlier than otherwise and get some action on that.

**Mr STEWART** - I accept what you say. It gets so wide that it could loosen it too much and you take on so much information.

**Mr WING** - But the scope under the terms of reference is to deal with a number of other matters as reasons for a single statutory body.

**Mr STEWART** - No doubt, and I suppose the desirability and the appropriateness of a single authority is probably the key. You probably have to argue the negative and ask what the combined position has been over the last 50 years from having not a single authority but a number of government departments, councils, interest groups, UTRIA and various people managing it and have they done a good job. If they have not then there is a very good reason that there should be a single authority to go forward. That is the way I have looked at.

**Mr WING** - Even if they have done a good job, even if they have done the best available, is that adequate? Do they have enough powers? Do they have enough finance?

**Mr STEWART** - Clearly, as I have said, history has shown that there are number of government departments - DPIW, Parks and Wildlife, the port authority - that have some authority. Also, some agricultural government bodies in the highlands, where basically the silt comes from, all have had some input into it. Then you have the Launceston City Council, the West Tamar City Council and a body like UTRIA and you might get another entity such as an interest group all having their say, but basically there is a quest for funding to look after the river properly. If it is the Launceston City Council engineer who is the chief of UTRIA, which he probably has been, he has too much of a vested interest in the Launceston City Council's pursuits and he will never put his lifeline on the river system.

That could be the same for the general manager of the city or the mayor of the city or the West Tamar Council or a university chancellor on UTRIA saying, 'I want \$500 000 to put into my university' or any interested person wanting funding for putting into the river, building a new school, a new road. If we do not get an independent body that has some clout I do not think you will ever get the correct funding for the river.

It is a bit like having a department of infrastructure to look after roads. There is a specific government department to look after our roads. I think we need to get a single statutory body that is independent. If this body is not independent and consists of the mayor, the city engineer, et cetera, I do not think they are going to go anywhere at all. We are just going to have the same position that the fight for funds for the infrastructure of his sewerage systems and everything else will always be a real issue and you will never really get the authority looking for the real root cause of the problem.

Obviously, the Esk River and the Tamar River stretch far and wide and in the probably 20 000 years since we got going and there has been an enormous build-up of silt in the river already and nobody is to blame. We cannot say it is the current Government's fault because clearly it is not. Silt has been coming down the river for hundreds and hundreds of years. Probably the last couple of hundred years there has been a significantly greater volume than was the case when settlement started and we started to cut the trees down, farming the land, building cities and so on. In the last couple of hundred years it has really become greater. We had a port authority looking after the river for perhaps 30 or 40 years. We now have MAST in theory looking after the water users on top of the river, but nobody really looks after the water under the river. At the moment I do not think there is anybody who really has the responsibility for looking after the river system.

I do not know that you could physically pinpoint anybody and say, 'That's your responsibility'.

**Mr DEAN** - That's right.

**Mr STEWART** - Then you have this issue forever. We haven't been able to get rid of the old boats because we are not sure whose jurisdiction it is. If you ask the ports authority you are told their jurisdiction stops at the Batman Bridge. MAST says it is Parks and Wildlife's and they say it is not.

**Mr DEAN** - The blame game is pretty obvious, isn't it?

**Mr STEWART** - Yes, unless we get a single authority that the Government legislates for and whose responsibility it is to look after the river.

I think there are a number of questions that haven't been answered. I have said there needs to be a single authority with some backbone because there is probably not much point in having an authority unless it has some clout. If not I think we would be wasting our time so it needs to have some clout.

In my view nobody has tried to identify what we can do with the silt. All we currently do is take the silt out and put it in a pond. Nobody has tried to think about what we can do with the few hundred thousands of meters of silt a year and we put it in a pond and then we will dig it up and give it to somebody. We keep trying to identify where it is

coming from. We know there are millions of tonnes of it in the river. What we need to do is try to identify what we can do with it.

Again, because there is not a single authority nobody takes any care about whether it is environmentally responsible to pull it out and the way we pull it out. Simply because of the cheapest way to get it out or to move it is to get a great big dredge in with a great big cutter head like a bulldozer and bulldoze your way through the mud this is what we do and yet three-quarters of it goes back into the river system and 25 per cent of it goes into the pond. All it does is if I have my marina empty, as soon as the Launceston City Council's contractor starts his dredge up my marina will get full again because he puts more of it back into the river than he puts into his pipe. This is all he can do because that is the only dredge he has and that is what the Launceston City Council wants to use. It moves a volume of mud or silt, a small portion of it into the silt pond and the rest of it goes back into the river system and wherever we continue to dredge a hole for boating activity is where the silt will go. It will find its natural repose. That is what silt does; it will find the natural spot that it wants to go back to.

**CHAIR** - What dredging activity do you have at the marina?

**Mr STEWART** - We have been dredging consistently there for the last three years.

**CHAIR** - Under your own steam?

**Mr STEWART** - Under our own steam. It is probably costing me \$200 000 a year and I have made the decision in the last month that I am stopping. I am stopping because we were using a puffing system to move water around that cost about \$5 000 a month in energy. We basically had the re-configured pump out of the dry dock. We were trying to keep the silt moving so it wouldn't sit and stay in our marina but the cost is just prohibitive.

**Mr WING** - You should not have the responsibility of that, should you?

**Mr STEWART** - No. I decided to stop because all of a sudden the Government decided to change rates. I am not going to try to pay rates and create water.

**CHAIR** - What rates are you being asked to pay that you haven't been charged before, Errol?

**Mr STEWART** - They have just decided they are going to charge rates for the physical water space. I pay a lease to the Crown for the marina space and two months ago I had an account from LCC for \$8 000 for rates.

**Mr DEAN** - For the marina's part?

**Mr STEWART** - Absolutely. I said, I don't think this is cricket as I am spending \$200 000 a year trying to dredge it. We have just pulled our dredging program. It is too costly, too hard and I am over it.

**CHAIR** - Errol, this is not a State Government situation, though, is it? This is the Launceston City Council.

**Mr STEWART** - The State Government charge me a lease on the water because it is a State river, so I pay the Crown \$3 000 or \$4 000 to lease the water where the marina physically sits.

**CHAIR** - As you have been doing since you were established?

**Mr STEWART** - Yes, since we started. In the last two months I was sent a bill from the Launceston City Council to say, 'You have a lease over that water. Here is a bill for \$4 000 and another bill for \$4 000 for last year'.

**Mr WING** - Oh, retrospective.

**Mr STEWART** - Yes, they just decided that. I am spending \$200 000 a year to try to keep some water so I figured that it is probably time for me to pull that up. What it will do is it will continue to build up and up and we will continue to have fewer boats there. I can't afford to continue paying \$200 000.

**CHAIR** - Does the council dredge there?

**Mr STEWART** - They did three or four years ago. I made an application to the Department of State Development and said, 'There's all this funding around. The marina is widely used by everybody' and they came in once and dredged it, but it was a hassle. They said, 'We'll give you one day or two days and anything over that' - it was just a drama. It always is because what UTRIA says is, 'We want you to go up and dredge the marina. How much is that going to cost? It is going to cost  $x$  dollars'. That is one day's work and they do one day's work and they haven't finished so I say, 'You can finish this' but they want to give me a bill for another \$10 000. We built our own dredge about three years ago and we have been using that. We work one end of it to the other trying to keep some water.

**Mr DEAN** - Errol, if a single statutory authority was put in place to look at all these issues, do you believe they should have absolute and total control over all of that as well - cost, charges, what will be included, what won't be included?

**Mr STEWART** - Absolutely. The authority should look at things concerning the river users, such as tourism issues, safety issues, flooding issues. I think you need to control the whole thing.

**Mr DEAN** - I don't disagree.

**Mr STEWART** - Nobody wants to take responsibility. I say to the city council, 'I pay your rates, will you dredge it?' and they are not interested. I pay certain lease fees to the department and say, 'Will you dredge it?' and they are not interested either. Eventually you do it yourself. I think unless you get a single body that has some clout that says, 'We see the city basin as a strategic part'. There is more than just the city basin, of course. One of the things that I have said in my closing letter is that we continue to dam upstream. Trevallyn Dam, Meander Dam and more recently Archers Dam, which is at Rocherlea, and certainly the damming of rivers has created a substantial financial benefit to the State. I don't have any doubt about that at all. Unless there is a single authority that says, 'What damage is this going to do to the big stream right in the middle of

Launceston?', nobody cares a continental. Gerald Archer got his tick of approval to put his great big dam in and that covers 50 square miles. Has anybody really considered the flow into the river? Probably not because it is outside the bounds of UTRIA, so who cares? If you eventually want to dry up the river we might as well put a footy and a soccer oval in between the park and the Tamar Yacht Club and put a big pipe underneath it and we can have a soccer field there. That is potentially where we are heading if everybody keeps damming every bit of flow upstream.

I understand that the Trevallyn Dam provides cogeneration and plenty of money is provided. So does Meander, it is going to provide water to all the farmers all over. Gerald Archer's big dam out there is giving him enormous financial rewards, but is there any authority that has looked at the potential of the damage? If you have a look at what they have done in the Snowy, they have undone all that to get the rivers going. The rivers just dried up.

**Mr WING** - As the Gorge has, almost.

**Mr STEWART** - The two State governments - New South Wales and Victoria - poured billions into fixing the Snowy River. They just took all the water flow out of it and it just became a dry salt bed. So I think there's a lot of damage being done with upstream damming, but nobody seems to have any physical science as to what might happen if somebody else wants to put another massive dam that's on the tributary to the Tamar. Unless you have a single authority, who is going to do it? The Launceston City Council don't want to do it, but they've got to take responsibility for the dredging.

**Mr WING** - I wonder should they have main responsibility for the dredging, because most of the silt comes from outside the boundary; it's just dumped here.

**Mr STEWART** - Definitely not.

**Mr WING** - No, but in the past they've had to. Since the PLA moved downstream they've had to take some responsibility.

**Mr STEWART** - Certainly not, and I said that in my letter that no-one really wants to take the blame. The Launceston City Council or the river basin reaps the reward to the detriment of the siltation, so the LCC is getting the blame, probably unfairly because clearly they didn't pour silt into the river. The silt has been coming down for thousands of years, and in the last couple of hundred there has been a massive come down. We build all these cities, so every time there's a bit of dust it ends up in the river. So it's not just Launceston City Council's fault, clearly - it's just civilisation, isn't it? It has just happened.

Clearly, I think we need to take a position so somebody needs to be responsible for it, and that authority needs to be a bit independent. If it needs to chase some money, if it is full of board members from the Launceston City Council or from the university or from some other statutory authority, they are going to say, 'No, because if we give the money to the river blokes, we're not going to get any.' Geoff Brayford is just a classic example - he hates to spend any money on dredging because there is so much pressure on him for other things. I accept that he doesn't want to put any money into the river system

because he has to look after his sewerage system, roads, and so on, and everybody is hassling him.

**Mr WING** - And footpath signs, too.

**Mr STEWART** - The problem is that is just what happens.

**Mr DEAN** - Mr Chairman, can I take this one step further. You've made clear your position on a single statutory authority. Evidence has been given to this committee - I think I am right and I will be corrected if I am not - that it was believed by some that perhaps that single statutory authority, if it were put in place, would be able to work in tandem with the current local government committee that has been set up, the local authority here. I think there are about three or four people outside of council involved in that committee - the mayor, the general manager, and I think somebody else as well - set up under the Local Government Act. Do you believe that could work that way, or not, or are you saying, 'No, we just need one simple statutory authority, let's get it'?

**Mr STEWART** - No, I am not saying that at all. I am really saying that if there were a statutory authority - and let's say it's the six people in this room and we are responsible for the river system - and if there's legislation in place, it is your responsibility to look after the river. You know that eventually you are going to look at it and say, 'We're going to need a budget of \$3 million a year', or whatever the figure might be, and you are going to take advice from that committee, that group of people.

We have a particular problem with our levee banks, so you're going to listen to their issues and say, 'Right, we might need to get some more funding to fix that, or we might need your help here'. Or you might take some advice from the river users and you might be talking to the people upstream, the State Rivers and Water Commission, to say, 'It's all very well for you to put that dam in at Meander, but we're going to take  $x$  megalitres out of the Basin.' You talk to your hydrologist and ask what is that will do to the river. The answer comes back that it means more silt will come up, so what are we going to do?

I think you still have to work with everybody; it just needs somebody to take charge and get hold of it.

**Mr WING** - You made the point in your written submission that it's vital, in your view, to have independent people away from the city hall, State Treasury, the university, and so on. All these groups want funding more for their purposes other than that of the river, as you just commented a short time ago.

**Mr STEWART** - They've all got their specific interests - and understandably, there is nothing wrong with that. That's simply the way it is. If you were in State Treasury, even if you say you are going to sit on the authority, and there's more demand for welfare or there's more demand for health, or schools, or whatever it is, which way do you go? I am not saying that is wrong, but I am saying that if you don't have completely independent people who are away from that part of the mire, you will never get a strong body that says, 'We need some more funding here, we need to fix this problem'.

Just as importantly they need to probably start looking at the four or five key issues of what they do. All we seem to do is say, 'Let us find out where the silt is coming from.'

And that is what I have heard for the last 20 years, where is it coming from? I can tell you there are millions of tonnes of it in the river, so let us work out how we can fix that problem.

**Mr WING** - And no one is responsible for that?

**Mr STEWART** - Nobody is responsible. In my personal view, you now have a dam on South Esk, you have some very good filtering systems on the North Esk, so the biggest problem in the river now is that you will get more silt coming down in times of flood. We have not had any floods at all in the last 20 years, but the silt comes down in times of a big rain. Even with a big rain in the city it will happen. If there is a massive downpour and you look at Wellington Street from where I live, you will just see dirt and silt just running down the streets in massive amounts and that just all ends up in the Basin.

Development of cities is just as big a problem as anything. The dust ends up sitting somewhere and as soon as there is a big rain it ends up right in the Basin. Then if we do not get a decent rain for a good deal of time that silt keeps coming back up from downstream.

When we started the Seaport development we had to do a study on the river flow and we used a hydrologist from Lakes Entrance to do the work. He advised us that the tidal prism is approximately 14 kilometres, which is about Dilston, so if you put a cork in the water at Dilston and it went round corners without getting stuck it would end up at the marina and backwards and forwards it would go.

**CHAIR** - Each day?

**Mr STEWART** - Each tide, twice a day. So basically what happens is if you have very little rain that tidal movement keeps pushing up and up. If you get a lot of rain consistently, it goes the other way. But as we all know, in the latter part of last century, the last 10 or 20 years, we have not had perhaps the rains that we saw in the earlier part of the century. So that tidal movement tends to bring up more silt.

I do not think that we have had a look at the influences of boating activity. Nobody has really considered what boating activity does to twist the silt up and get it moving again.

I do not think that anybody has really had a look at where we can place silt other than just saying it goes in the silt ponds, we cannot put it anywhere else. There has always been this argument that there is nowhere to put it. In my view that is a fallacy.

**Mr WING** - It probably has commercial value. If we had an authority that had the powers that we are talking about they could look at that aspect of it.

**CHAIR** - You heard the idea, Errol, of pumping it six kilometres away - this opportunity to deposit it a fair way away but the cost of pumping it is quite expensive?

**Mr STEWART** - It is. It will use a lot of energy and a lot of water. But certainly down the West Tamar if you look at, say, Chester Bullock's farm, he has done a lot of work by building his farm up at close to the edge of the river. You could take my dredge and go down the river and just pump it onto the farmland and stop all that inundation of all that

farmland and you would improve the farmland out of sight. But you do not have to pump it five yards you just take your dredge down and pump it along the river banks and build your river banks up strategically all the way down the river.

**Mr WING** - There is plenty of evidence that it can be used to advantage with the Grammar School sports area.

**Mr STEWART** - Just imagine again, with my dredge, the city council dredge or anybody's dredge, you could go and sit across from the Grammar School at that big bend, you could go straight back over the river and you could fill all that low lying area up from the Grammar School boatshed back to where they are. You could pump thousands of cubic metres in there. You do not have to pump it anywhere because you could put the dredge right outside.

You do not just have to get it out of the City Basin; there is silt all the way along. If you create a hole at the Grammar School bend that will then fill up and will give you another couple of years that it will not fill up in the City Basin because it will always find its natural repose. Wherever you dig a hole for the silt it will fill up.

**Mr WING** - It is just the cost of getting it some distance away from the -

**Mr STEWART** - But you can take any dredge, because it is on the water, to a particular point and pump it along the river edge as you go. So if we dig a hole say at Grammar School bend and take 50 000 cubic metres, the next 50 000 cubic metres that is going to drop out will drop out there instead of dropping out in the City Basin first. It will drop out in the easiest spot it can drop. So we should not just limit ourselves to pumping here. Again, we have probably not done enough research because there are all these people - UTRIA over here and the council over there - and we haven't really done enough research on the best thing to do with our silt. Love him or hate him, Les Dick is probably a real good ally if you can get him on side because he understands it. He has been cutting it for years. He has a good knowledge of it. He put the stick fence in the river a bit below the university and they basically put a fence in to try to get the silt to form a dam of silt behind a stick fence. It worked quite well but then he said nobody maintained it and it all fell apart. He did that when he was on the Ports Authority.

**Mr WING** - We have been trying to contact him but we haven't had any luck so far. We wanted to talk to him.

**Mr STEWART** - He is one of those people you probably have to mollycoddle a bit. For a formal thing he might say 'I am not interested in helping', but if you can get off the formality thing and say, 'Look, come here and talk and don't be so silly, you cranky old bugger', I think he would help you. I think he hates the authority thing - 'I am not going to help them because they never help me.'

**Mr DEAN** - He has a number of issues about the authorities at the present time and he has raised some with me.

**Mr WING** - Do you know if he is away, Errol?

**Mr STEWART** - No, I don't really. I have his mobile; he is contactable, most certainly.



I think it is probably important to have a look and see whether there is the possibility of stopping the return of silt from downstream. The easiest thing to do is to put a barrage across the river. That is probably very costly and very difficult environmentally and financially to get up but there are probably some investigative things we need to do to see if we can stop the river silt from downstream coming back upstream. Again, we don't look at that; we just look at dredging here. We particularly need to look at a method of dredging: is there a more efficient system of dredging to get the silt out? I think there is. All we ever do is go out to tender for the cheapest method to move the silt from there to there - \$4 or \$3 a cubic metre, nothing else, that's the tender price, that's the deal.

**Mr DEAN** - I think after pumping the silt, as some have said, six kilometres out, after a very few years you would you put a barrage in, wouldn't you?

**Mr STEWART** - I have heard that they wanted to pump it up to some quite high grade and they will take a lot of energy. You can pump it but you need to take the dredge downstream and find a paddock or a river edge where you can physically make a levy to stop the farmland being inundated with potentially salty water. There are literally thousands of acres that you could do it with downstream. It is a much easier and much less costly solution because to take the dredge downstream costs you nothing. You are only really pumping it 200 or 300 yards. So I think there are better ways but again I don't think there are practical people who have been involved. When you go back to a bloke like Les he is probably a knowledgeable person who could help in that.

In closing, I must say that the only thing that particularly concerns me is the damming effect. Unless there is a single authority nobody is ever going to really take that issue up because there are so many commercial benefits to putting a dam in. Gerald Archer's dam, for example, takes about 50-odd square kilometres and if there are two inches of rain tomorrow his dam will get filled up and there will be an overflow into the river.

**Mr DEAN** - Are you talking about the dam on the right-hand side, are you?

**Mr STEWART** - Yes.

**Mr DEAN** - It is a large area.

**Mr STEWART** - Probably a minimum flow to come out of there is 2 gigalitres or whatever it might be, but every time there is a big rain his dam fills up. Previously the water flushed. That's fair enough but that happens with Trevallyn Dam, Meander Dam and every other property that has a dam around the place. The first thing that happens is that the dams fill up. There must be a level, if we keep taking water out of the Basin, that is going to be detrimental to the river. So instead of two metres of mud you will end up with two-and-a-half metres or three metres of mud. That will be detrimental to your flooding position because when the flood comes it will take the top layer of mud away. But the mud compacts and gets really like a clay, and you have to cut it. You cannot suck it out with a sucker because it is like a very condensed clay underneath because it gets weight on it and it gets stronger and stronger. So, as it comes up, you can only ever take about the top 300 with a flush, or the top 500 if it is a big enough flush. So the river basin is gradually lifting. It does not matter if there is a lot of silt downstream because

the flooding downstream goes over the river banks. The only flood issue that you have is right in town, so that is why we need more mud out of the Basin. That is where the danger is.

**Mr WING** - So you brought in some photographs, Errol?

**Mr STEWART** - Yes, I will show you them. On the top right hand side was the mud prior to 2005, prior to the development. Along this boardwalk, which was the first boardwalk we built, prior to the building we put an excavator on the concrete ridge, which we built for the houses, and we excavated the silt underneath here with a nine-metre, long-arm excavator. So we had three metres of silt under there. Since then that has come back and it is four or five metres. There is a massive amount of silt.

**Mr DEAN** - Over what period of time has that come back, Errol?

**Mr STEWART** - It comes back in two or three years. It will depend if the dredge goes to the other side of the river and starts to dredge the corner - what we know as Home Point or Town Point. As soon as the dredge goes over there, because it is very close, and it starts dredging, the bulldozer effect gets going. He has this massive big bulldozer blade going around and around; he takes a little pipe then sucks a bit of it and goes up to the silt ponds but the majority of it goes straight back into the stream. Where does it go? Straight over the road. So that is the difficulty we face. I am not blaming council or anybody else. I am just saying that with the current method of dredging, that is what occurs. You can see this marina here. We are now getting to the stage that if we dig a hole and start dredging we create a bigger problem for ourselves. There is an enormous snaking effect. The marina wants to sink where there is water, and when I do not have it dredged it is sitting up so I put this enormous pressure on my equipment. So we have decided we should stop.

What will eventually happen is that it will just come back. You will find that if you look over the marina, probably at low tide in a year's time after we have stopped dredging, you will see mud for the first 20 metres.

I did put a proposition to council that there was a remedy, and that was to move this boardwalk out 20 metres. I said that I would take the whole marina out for the first 20 metres. I said I would make a contribution of \$200 000 and we would build a big deck out of the whole lot of it so it can be used as a city deck for rest of its lifetime. I still think that is a good method to solve the issue. We would lose probably 20 births but it covers up the mud for all intents and purposes, and we move the marina out into deeper water. So we would be moving the marina, basically, out to this waterline and you would virtually never see the mud at all. I put that proposal to the council last year and I said it was probably going to cost something in the order of a couple of million. I said I was prepared to put in 10 per cent because \$200 000 to me was a year's dredging. We might have put in a little bit more if push came to a shove. I said I would be prepared if they were prepared to take it on and at least say, 'Yes, we think this is worthwhile'. I think I could have gone to the State and to the Feds and I think we could have got some money. But you cannot go to the State or Feds unless the council will say, yes, they are in for some money, because you do not get anywhere. They said no. They have plenty of calls on funds too and I understand that. There is a call from welfare, health and education. However, unless there is a single authority that says, 'Hey, we're putting our

hand up here; we need to fix this problem today', I do not think you will ever get it solved.

**Mr WING** - With a single focus on the river system?

**Mr STEWART** - On the river system, yes. I do not think it will ever work. I do not think you will ever get a good result.

**Mr WING** - The single focus on the river system.

**Mr STEWART** - Yes.

**CHAIR** - These are the priorities.

**Mr STEWART** - This is where we need to go. I think the road budget in Launceston is \$25 million and they are putting three bobs' worth into the river system and really it is the best asset we have, from a tourism perspective.

**Mr WING** - Yes, a city of rivers but at the moment it is an embarrassment.

**Mr STEWART** - It is a bit.

**Mr WING** - At low tide.

**CHAIR** - Errol, do you have any closing comments?

**Mr STEWART** - No, I appreciate the opportunity to put my two bobs' worth in. It is something that I am pretty passionate about and hopefully we will get a better result in the next 10 years.

**CHAIR** - Errol, again, on behalf of the committee, thanks very much for coming and giving us the experience that you have had with your developments and your work with the river.

**THE WITNESS WITHDREW.**

**Mr ROGER SWAIN, Ms CATHERINE MURDOCH AND Mr CHRIS OLDFIELD,**  
TFGA, WERE CALLED, MADE THE STATUTORY DECLARATION AND WERE  
EXAMINED.

**CHAIR** (Mr Finch) - Welcome. Roger, please introduce the members that you have here from the TFGA.

**Mr SWAIN** - We are here today representing the TFGA. I am the President of the TFGA. With me are Chris Oldfield and Catherine Murdoch.

**CHAIR** - Thank you very much for coming to give evidence. You understand our terms of reference. We would like to hear what you have to say first.

**Mr SWAIN** - Thanks, Kerry, and let me say that in accordance with your rules we are here not to debate why the silt is in the river or what the best methods to remove it would be, but more to debate whether or not there should be a statutory authority.

**Mr WING** - That is the issue.

**Mr SWAIN** - Before I start could I ask the committee a couple of questions so we at the TFGA can better understand your position? Could we perhaps go forward and assume that we are in nirvana at the end of this long process and that we now have a better system to manage the whole area in question? What is it that the committee believes would be the best outcome for the rivers and the environment in particular?

**CHAIR** - Roger, that is our process. We are taking evidence to see what people and what organisations like yours think but we have no preconceived idea of where we are heading and so we will gather all the evidence and not just the evidence to suit that conclusion. It might be the recommendation of this committee that we do not proceed, that what is happening at the moment is as near to nirvana as we can get. We are quite open-minded in taking this evidence and we have no conclusion that we are working towards.

**Mr SWAIN** - Thank you for that. I understand that and I appreciate it. Given that, basically our initial response to your inquiry was that we did not support the establishment of a single statutory body for the Tamar Estuary and Esk River. The main reasons behind this are six clear points from our point of view and I will go through them if I may.

Generally, the farming community is the last bastion of private enterprise and a suggestion of a regulatory authority points to regulation. The TFGA does not support the introduction of further regulation on the farming community and the farming community currently is voluntarily participating in water management planning processes and natural resource management activities, as has always been the case, and believes that via these processes such as maintaining and improving the North and South Esk rivers they will be improved.

Our second point is that currently we have in existence the Tamar Estuary Esk Rivers program, and I will refer to that as TEER. The TFGA supports this voluntary program and its mission to establish and manage a coordinated Tamar Estuary and Esk Rivers program which recognises a whole-of-government and a whole-of-community approach

to achieve long-term natural resource management outcomes for the Tamar and rivers associated with it.

**Mr DEAN** - Chair, could this document be tabled to save us from taking copious notes?

**Mr OLDFIELD** - We can provide a document.

**Mr SWAIN** - The fact is that the TEER program is a voluntary program. It is a collaborative approach, a partnership with government and industry, and I think the Launceston City Council is also part of that. This collaborative approach is important to the TFGA. The TFGA understands that the TEER program has an extensive research program which will, I think, give answers to a lot of the questions that Errol was raising earlier, such as the reason for the silt build up and what is keeping it there. I think that scientific assessment of what is actually happening in the Basin will be a very good outcome from that program. That program can then take that information to government through this whole-of-community approach and say this is the reason and government needs to deal with it.

In talking about funding, because TEER takes a whole-of-community approach, it will always be more capable of accessing external funding than a statutory authority. If you have taken any notice in recent times of the Department of Primary Industries and their move away from research development and extension into core business areas, we have seen a shrinking of their ability to deliver extension into the farming community. Now we have the partnership of the university through TIAR. Now TIAR is a very good example of the ability of an external body able to leverage external funding.

**CHAIR** - What does TIAR stand for?

**Mr SWAIN** - Tasmanian Institute of Agricultural Research. It is basically an arm of the university. What we have seen, particularly in the dairy industry in the handover of the Elliott Research and Demonstration Station to TIAR and consequently the handover of the Vegetable Research Station at Forthside, are better and greater outcomes than we were seeing through the Department of Primary Industries because of that whole-of-industry approach. What we are suggesting is that the TEER program currently is capable of delivering that.

**Mr SWAIN** - The third point is the EPA was established in Tasmania last year, in 2008, and part of the EPA's role is to regulate the waterways of Tasmania. How would the role of the EPA, a statutory body, not be duplicated by the Tamar and Esk Rivers statutory body?

Point four concerns State resources. The State Government already provides \$500 000 per annum to NRM North to operate as a regional NRM body. Surely enabling NRM North to continue to manager the TEER program provides the State Government with good value for its existing investment. If a statutory body were established, the State Government would still be paying half a million dollars per annum to NRM North, as well as having to find more funding to run another statutory body, not to mention the fact that the initial scoping and establishment costs of setting up such a statutory body would certainly be very extensive.

I honestly believe that it's a naïve view that setting up a statutory authority, which basically still has to get in the bear pit with government at budget time and say, 'Give me the money to deal with my issue', is the answer. Anyone who believes that that's a simple process I think is quite naïve. I have now sat through two of the budget round table processes - and, Catherine, you have been down to one, haven't you - where every man and his dog is after funding, including the government departments. They basically sit around the table and say, 'Please give me money.' Again, I must reinforce that it is quite naïve to believe that just because you have a statutory authority it means ipso facto you're going to get money because you are a statutory authority. I think we need to clear that one up right now.

**Mr WING** - So what if you can have a statutory authority with adequate funding if governments accepted the whole proposition that there was nobody directly responsible for the river system, we've got a whole batch of different organisations but no-one directly is responsible. And if the Government were prepared to establish an authority and guarantee adequate funding, how would you feel then?

**Mr SWAIN** - Catherine, would you like to answer that one?

**Ms MURDOCH** - I think there would still have to be the question of how are we not duplicating other roles, and with the UTRIA program particularly, its main role is to collaborate and coordinate all those existing bodies which are being funded, and if NRM North's role isn't that brokering, I would see that as still exceptionally good value for that \$500 000 a year. The fact is just because you set up that statutory body for the Esk and Tamar areas, doesn't mean that other statutory bodies are still going to be working in the rest of the State. Their roles won't change.

So I would still see a duplicating of roles in that there would have to be some sort of high level, no doubt a heads of agreement between that statutory body and the EPA and the other authorities and organisations that they won't operate in that area. I think the point here is that the TFGA are totally supportive of this inquiry's belief that there needs to be that coordinated and collaborative approach for the Tamar and Esk Rivers, there is no doubt about that because these issues will not be solved without that.

We do believe that the structure is there for the UTRIA and we do have some points that we believe the UTRIA can be strengthened and we would like to put those points on the table as well. Whether or not you see that as the acceptable outcome with further strengthening of that program, giving it a bit more teeth and I think accountability, importantly, might be a fair assessment of that.

**Mr WING** - Is there any reason why UTRIA could not work collaboratively with a statutory authority? I would expect it would. It's largely a research organisation, and that would be invaluable to a statutory authority. That is collaboration.

**Ms MURDOCH** - It is currently doing research as a priority, but its longer-term vision obviously is to have the funds in there to undertake implementation down the track, and then alignment of resources. For instance, the blue-green algae thing up at Trevallyn was a fantastic example of how that program has for the first time coordinated everyone there to get a really good outcome - thankfully it hasn't come up yet this year. I think importantly - and it comes to the first point that we have mentioned - if UTRIA is doing

that, what is the role that the statutory body would actually be doing and what is the regulation attached to that? That is what we are concerned about.

We just heard evidence that if there is rain and the dams and things fill up, the farmers take the water and it doesn't come in. On behalf of the farming community, I tell you that we are exceptionally concerned. This our main point: without knowing what the legislation and regulation attached to this statutory authority would be, what would be imposed on our farmers? They are already doing the water management planning and cooperating with that. Our former presentation indicated that there might be some concern that farmers are taking water that would be flushing the system. That is exactly the response the TFGA is concerned about for its members, without knowing what the regulatory arms and sticks will be for the regulatory authority.

**Mr WING** - Do you agree now that that nobody has direct responsibility for whatever the problems are in the river?

**Ms MURDOCH** - No, I believe that some arms of that can be tidied up and you would hope that, as things get openly discussed and people know what each other is doing, solutions can actually be formed as to how the bodies can work better together. One of the first activities of the TEER program was to do that management plan and have the regulation to say who is responsible for the river. Clearly in some cases where it is private land -

**Mr DEAN** - Excuse me, but they were never going to assume responsibility for the absolute control of the river. They are simply doing a study; that is what they are doing at the present time - a study as to how it should operate.

**Ms MURDOCH** - They are doing a study about where the silt is coming from, what are the hydro dynamics within the estuary, all of those things. At the present time, as you know, there is even conjecture as to where silt is coming from. Who takes responsibility? There are always going to be different levels. There would be concern clearly to private landowners that suddenly the statutory authority can legislatively acquire land. I suppose you could take the Sydney water catchment as an example of where they legislatively acquired land around that catchment to protect its drinking water.

Now, what does 'Who takes responsibility' mean? A lot of that land is privately owned by our members. They take responsibility for their river banks and to ensure that they are getting the best water still coming down and the North Esk farmers have been doing a lot of riparian fencing and things over the last two years which is protecting Launceston's water source.

So they take responsibility for their land. To that question of who takes responsibility, I think the answer is that there are various levels of people taking responsibility. What is the statutory authority talking about 'taking responsibility' for when it says those terms? I think that is clearly a question.

**Mr WING** - If you disagree with the proposition that no body or organisation has the direct responsibility for the various problems associated with our river system then which one does?

**Ms MURDOCH** - Are we talking about the North and South Esk and the Tamar Estuary?

**Mr WING** - We are talking about the Tamar Estuary and the North and South Esk river systems and the problems associated with them. If you disagree with the proposition that I put to you earlier that no single body or organisation has direct responsibility and the capacity to deal with the various problems then which one has?

**Ms MURDOCH** - I think we are at cross purposes. I think that it is whether or not a single authority should be responsible for that or whether a single authority would take over the responsibilities of Hydro. They clearly have responsibility in their catchments to make sure that they do no do environmental degradation.

**Mr WING** - The Tamar River is an example of them being quite unsuccessful in that, don't you agree?

**Ms MURDOCH** - I do not think that I will comment on that.

**Mr WING** - Why not? Let us be realistic. You are making comments about it and surely it is self evident that that is quite a disaster.

**Mr SWAIN** - With all due respect though, that is basically a comment on the problem in the river, not a comment on whether or not a statutory authority would fix the problem.

**Mr WING** - I think it is.

**Mr SWAIN** - The point is though that if we really look at the fact that the TEER program is involved in the moment, I will just run through the list of people or the departments involved there. You have the Department of Environment, Parks, Heritage and the Arts, the Department of Primary Industries and Water, the Department of Health and Human Services, the Launceston City Council, the West Tamar Council, the George Town Council, the Meander Valley Council, Hydro Tasmania and NRM North. In addition to that you have the farmers in the catchment taking responsibility for their roles in maintaining good healthy waterways.

**Mr WING** - What power does TEER have to solve the problems? Apart from the investigation, what power does it have to solve the problems?

**Mr SWAIN** - Basically your premise then goes on to the fact that a regulatory authority would also have power and I do not think that it would.

**Mr WING** - It would if it was given power.

**Mr SWAIN** - I think that it would only end up in duplication and unnecessary use of government resources. We could probably have this discussion for a long time, Don.

**Mr WING** - It can only have power if it is given power. That is one suggestion, that a single statutory authority be appointed with power to deal with the problems, not just to do reports and investigations, all of which are valuable - and there has been a multiplicity of those over the years. But what authority has power to deal with the problems? The problems continue.



**Ms MURDOCH** - We have an example further on. There are examples where non-statutory bodies have exactly had that outcome because of the collaborative approach, people trusting and people coming on board in a partnership rather than in a regulated way but in a voluntary way that has had phenomenal outcomes. I think those are the outcomes that you are looking for and I know that it takes time to build up and to allow that kind of organisation to develop but I think TEER has that capacity.

**Mr WING** - Perhaps you can give us some examples.

**CHAIR** - Mr Wing, we are into a debate at this stage on points and I suspect the TFGA still has other issues to bring forward so I am wondering if we can continue with that and then see how much time we have.

**Mr WING** - Just before we leave that point, Mr Chairman, you mentioned the other authorities that dealt with this, could you just give us some examples?

**Ms MURDOCH** - That have jurisdiction within the waterway?

**Mr WING** - Yes.

**Ms MURDOCH** - National Parks obviously have the foreshore responsibility.

**Mr WING** - No, I thought you were referring in other States.

**Ms MURDOCH** - No, no.

**Mr SWAIN** - To be really honest, I suspect our aspirations are the same as yours. We really want to see the same pristine looking river that is clean, tidy, without the mudflats and all those sorts of things. We have the same aspirations. I think our only difference of opinion here is the vehicle we use to get there, and I will go on further here.

Catherine has done some very good investigative work here as to whether or not there is a statutory body somewhere else in Australia that does the same thing that is being suggested here and the only thing we have come up with is that there appears to be none that we can find apart from what is the South East Queensland Healthy Waterways Partnership and the report here, which we will give you to keep. It is exactly as Catherine has outlined. It is a collaborative approach of all those players within that catchment. They have worked over a considerable period of time now to deliver the outcomes that we are all aspiring to here without that regulatory approach and that is why we are suggesting that that is the preferred approach that we are looking at and not the regulatory one.

**CHAIR** - It is similar to TEER?

**Mr SWAIN** - It is a similar sort of thing as far as I can read through that, Kerry - that is the way it works.

**Mr WING** - Have you discovered any others where there is a statutory authority with that?

**Mr SWAIN** - We have found one and it is in Queensland. Their catchment management authority is in New South Wales basically and the statutory authority is in Queensland for supplying irrigation water to farmers. Both of these have pretty much ostracised the farming community and taken away all that goodwill that the farming community has built up. And, let us face it, without the goodwill of the farming community in a lot of these upper catchments that you are talking about here, you will struggle to get anything to work properly.

As Ian Dickenson has pointed out to me on many, many occasions, without the goodwill of the farming community you will struggle to get good environmental outcomes and that is really what we are talking about here - a really good environmental outcome.

Apparently the Healthy Waterways in south east Queensland is internationally recognised for its efforts so that is another point as well and they work particularly in the eastward draining rivers of south east Queensland between Noosa and the Queensland-New South Wales border and Moreton Bay. We understand that the TEER program itself is modelled on the Healthy Waterways program. Our final point -

**Mr WING** - So the fifth one -

**Mr SWAIN** - That was the fifth one - that we have basically done some investigating around Australia and we have not found a really good model that mirrors what is being suggested here, but we have found a model that supports our view of the world in this regard.

**Mr WING** - Thank you.

**Mr SWAIN** - I am also very much a strong believer in, rather than just coming and giving you a headache, that we should be also responsible for giving you some Panadol.

*Laughter.*

**Mr SWAIN** - So I will basically reiterate Catherine's earlier points. We would not be adverse to strengthening the reporting mechanisms on TEER and making it the vehicle for delivering what you are seeking to do.

**Mr WING** - Just reporting mechanisms?

**Mr SWAIN** - No, we are going further than reporting mechanisms. We suggest that the programs put forward by TEER, its annual budget and business plan, is submitted to Cabinet and that annual progress against the business plan is formally submitted to Cabinet by NRM North. That is more than reporting - in other words, it is basically saying, 'This is what we have done'. It is accountability. Basically it comes back to your point, Don, responsibility. If we were to make TEER accountable and responsible in that regard and it had to report to Cabinet, then Cabinet would be responsible in more ways than one of making sure that the outcomes that we here in the north are looking for in relation to our rivers are delivered in a better way.

**CHAIR** - Then we have this duplicated system of the TEER program functioning under NRM, again we have the various bodies that are making these assessments and

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recommendations. Is there some way for that to be a stronger amalgamation and a stronger strength to go to NRM? Was that implicit in your suggestion, Roger?

**Mr SWAIN** - Catherine is the former chief executive officer at NRM North so perhaps she would like to comment on that.

**Ms MURDOCH** - I think particularly this committee in looking at that - just the reporting is not appropriate, but to engage with it. All those stakeholders we talked about are on that and are formally in partnership agreements at the high level. As you know, Scott Gadd chairs the Tamar Estuary-Esk Rivers program. I think you should leave that page open to how you can strengthen that even further. This is just a suggestion. I don't think realistically the NRM bodies are under legislation in the States. In some ways I suppose they are statutory, but they are not regulatory. They are a bit of a unique model in Australia - it is a fantastic model. If that reporting mechanism can be strengthened - and let us think innovatively about it - as to whether it is not just under NRM that that partnership is formalised. There is an MOU, can you formalise a partnership even more, which would give accountability back to the other partners to require reporting back to NRM North? They might lodge it but it can be seen as a collaborative report. I think those increments could be put in place. I can't really speak on behalf of the partners but I think as part of them signing off to it that if those stringent reporting roles were put into place that should handle some of that. I think that discussion needs to be opened and to be had. The whole thing of throwing the baby away with the bathwater might not be suiting exactly what we need so what is the missing gap? Is there something we can do? Are there some instruments in place that can make that more accountable and responsible so that that discussion can be had as well? I think that would be a very worthwhile process.

**Mr WING** - I think you probably participated in the workshop that NRM organised?

**Ms MURDOCH** - I didn't.

**Mr WING** - Was the TFGA represented there?

**Mr SWAIN** - I don't know.

**Mr WING** - It was a very good session. There were probably 60 or 70 people there for most of the day. I am not sure if you are aware that, having been organised by NRM -

**Ms MURDOCH** - Yes, I did organise it.

**Mr WING** - that the outcome showed that the single most supported proposition to deal with problems in the Tamar Estuary and the Esk Rivers systems was for a single statutory authority

**Ms MURDOCH** - As I understand it, because I had signed off on the notes, it was that a single body be established to run that process.

**Mr WING** - With authority to deal with the problems. That was organised by NRM, so does that not influence you when you have a consensus almost of such a wide representative body of people attending a one-day workshop and coming up with that conclusion?

**Mr SWAIN** - They may have come to a conclusion that a single body might be the vehicle but they might not have come to the conclusion of a regulatory statutory authority, but I understand that that is probably for another debate.

**Mr WING** - I think it is fair to say that the tenor of that point of view was a single body with power to deal with the problems.

**Mr SWAIN** - Chairman, if we were to get down the track, and I understand that you have no views one way or another on this -

**CHAIR** - No agenda.

**Mr SWAIN** - what would your views be on what the regulatory authority's influence and impact on the farming community would be?

**CHAIR** - As we do further investigations we may be travelling to Queensland but certainly to South Australia, New South Wales and Victoria. We have carried out our own investigations. We do have some leads as to bodies that are conducting business along the lines of a single statutory authority so we are happy to investigate those and see how they sit and how it might sit back here. Then we make our recommendations or observations as to how something could be set up, but it is not for us to take it further. That would be our recommendation to the State Government and to the community. Then it would then be up to the Government to set the parameters if they decide to proceed down that course, if it was a recommendation from our committee that there be a single statutory authority. A lot of what happens in the future is really hypothetical as far as this committee is concerned because we have not had deliberations on what our recommendations might be. We are simply at the evidence-gathering stage.

**Mr DEAN** - It seems to me that one of the great concerns of the TFGA is that if a single statutory authority were set up you believe there would be further regulations and restrictions placed on the farming people. That is one of your main reasons for opposing a single statutory authority. Let me put the hypothetical position that if an authority were set up and if there were no stronger regulations on farming, would your position change? I think you are assuming that might happen but I don't think it would be likely to happen without a lot of discussion.

**Mr OLDFIELD** - I think that is a fair point to the extent that farming bodies such as ours will always see regulation as the last step. We would much rather see collaborative, cooperative approaches but at times there needs to be regulation. We support regulation in these cases but it really is the last resort.

So in answer to your question, if there were no regulatory powers against farmers or farming communities then that would help alleviate some of our concerns. We are very concerned that, if you had a statutory body, by its very nature it is going to start to become regulatory. At the moment we are being asked to support a regulatory authority but we don't know what its powers would be so that would obviously cause us great concern as representatives of farmers.

**CHAIR** - We hear that message loud and clear and that is not the intent of where we are at this stage.

**Mr OLDFIELD** - No, but it goes to the very core of our objection at this stage.

**Mr DEAN** - Yes, I can understand that.

**Mr SWAIN** - In relation to dams and our use of water in this State, from the farming community's point of view we are already heavily regulated. Do not think that the opposite is the case.

**CHAIR** - We do understand your concerns. Thank you very much for your attendance.

**THE WITNESSES WITHDREW.**

**Mr GARY ATKINSON** WAS CALLED, MADE THE STATUTORY DECLARATION AND WAS EXAMINED.

**CHAIR** - Thanks very much, Gary, for joining us here today.

**Mr ATKINSON** - The problem of the river, of course, is something that has been in existence since the settlement of Launceston. So it is not new; it has been around for 200 years. If you look at the records of the very first explorers they noted things such as mud banks when they first came up the river. I think the first ship up the river got stuck on the mud somewhere down around Tamar Island and they rowed the rest of the way to the Gorge. So there is nothing particularly new. What has changed is that approximately 100 000 people live in the valley these days. Everything from farming to industry and the activities of the population in general has no doubt contributed to making the situation much worse than it was 200 years ago when white settlement first began.

Your terms of reference ask a few questions. Firstly, to determine the cause of siltation problem. The siltation problem, as I have said, has always been there to some extent, but in the last 30 or 40 years there is no doubt that the Tamar River has got much worse.

**CHAIR** - You understand, Gary, that in the terms of reference it's not really our job to take on the investigation of the causes and solutions, but to have a statutory authority work out the priorities for those solutions. I just wanted to clarify that.

**Mr ATKINSON** - Well, it is not the role of the committee, but the role of the committee is to assess whether what has happened before has been successful or not.

**Mr WING** - Yes, and whether having a single statutory authority would improve the situation, and why.

**Mr ATKINSON** - I would like to quote from the report done for SFM in 2008.

**CHAIR** - What does SFM stand for, please?

**Mr ATKINSON** - I am not quite sure, actually; I couldn't find that. It was done by SFM for the Northern Tasmania National Resource Management Association. I quote from page 63, item 512 - management arrangements:

'They are complex. Several State documents and policy documents cover the area. Local government requirements add to the complexity and then State legislature also covers the problem.'

It goes on to say:

'No single set of objectives or policies is there to guide decision making; there is uncertainty as to what does happen. There is no single objective, a lack of guidelines for use, lack of consistent decision-making, a complex process for approval of development, and conflicts of use regarding the river'.

It also says in item 61 under background -

'More than 40 community groups exist within the Tamar region in dealing with these matters'.

**CHAIR** - What year was that report, Gary?

**Mr ATKINSON** - It was 2008. It was done by SFM on the Tamar Estuary Management Plan, and prepared for the Northern Tasmania Natural Resource Management Association Incorporated.

**CHAIR** - So that is highlighting the issues.

**Mr ATKINSON** - It is available on disc. What that is saying is that they think there are too many people who have a finger in the pie - or the mud.

**Mr WING** - Not one of which has the main responsibility -

**Mr ATKINSON** - That's right. You are splitting your authority and budgets and it is confusing to people who are trying to deal with matters relating to the river and how to solve what is, evidently, a growing problem.

**CHAIR** - You are of a mind to support the notion that there be a single statutory authority?

**Mr ATKINSON** - Yes, we need a single statutory authority with wide-ranging powers that deals with not just the Tamar River but also the whole catchment area - the South Esk, the North Esk and the river from Hebe Reef to Launceston.

**CHAIR** - Gary, I know you're a citizen and an observer of what goes on in the river, but is there some business skill or something in your background that might give you a better insight into the circumstances with the Tamar estuary?

**Mr WING** - A concerned, vigilant citizen with an interest in what's happening in the area, as I know.

**Mr ATKINSON** - Thank you Don. I have spoken to Mr Wing on several occasions about this because I live beside the river, I used to work beside the river and I have been observing the river every day for the last 35 years. I grew up at Invermay, I have swum in the river, I have fallen in the river and I have fished in the river. My father used to work for the Marine Board. I still live beside the river at Rosevears so I observe it everyday and I see how the river changes and what is happening.

Everybody feels that it should be improved but how we go about it is what this is all about, I hope. From this, I hope that we get something to change because, as I see it, nothing is improving. Things are getting worse. The silt is still in the river. In my view, the river is full of silt, the flood plains have had silt deposited in them. The West Tamar flats have been refilled, the flats near the sewage treatment works have been filled, the Launceston Church Grammar School oval has been filled with silt, the flats near Brown

Street between the river and the flood levees have been filled. Where is the next lot of silt going to go?

**Mr WING** - I know you have some views about the build up of the level of the flats to the west of the Tamar River.

**Mr ATKINSON** - Yes. There are plenty of pictures of the 1929 flood, which show the floodwaters covering all the flats between the bottom of Trevallyn Hill out to the river. In the last few years those flats have become deposits for silt and you have raised the silt level approximately two metres. In 1929, King's Bridge was closed because it was felt that it was threatened by the floodwaters. It was not just the flood waters; the floods brought down a lot of debris, huge trees and if a few of those became caught in the superstructure of the bridge there was a fair chance that that bridge would also be washed away.

There was a concern in 1929 that the bridge would go. That is an icon of the city, it would cost millions to replace - actually it is irreplaceable. By raising the flood levee by two metres you are in effect raising the level of the next flood by two metres because the flood will go across the top of the flood plain and the mud that is in the silt deposits at the moment will be hardened and dry and they will not flush out like the silt that is in the river itself because that remains fluid. The flood plains themselves will be two metres higher and the flood level, if one occurs, will also be two metres higher. If that flood level is two meters higher then King's Bridge will definitely be destroyed by another 1929 flood.

That is one reason. The other reason is that, as an Invermay person, although I do not live in Invermay now but have lived there and I have family living there and I have property in Invermay, I am concerned about the effects on the flood levees. There has been a lot of talk about the need to replace the flood levees. I do not wish to go into great detail about that at this time, but I would like to say that I believe, and I do not know if this is within the ambit of this inquiry or not, that the 1929 flood can be shown to be a one-off event. What happened was that the Perth Bridge was destroyed in 1929 and I was told that the last person to drive over it was Mr Gibson from Perth. The water built up behind that bridge until it collapsed. It had partly collapsed in a prior flood. If you look at the photos taken after the 1929 flood, that bridge is utterly destroyed. It had virtually acted as a dam until it collapsed. Like a dam collapsing there was a great rush of water, contributing significantly to the flooding of Launceston.

You have to remember that it was not just Invermay that was flooded. The floodwaters, according to some people, were certainly flowing down parts of the city, only a few hundred metres from where we sit now. All that area between the lower parts of the city up to the North Esk was under water. The Customs House, which was built in 1888, was flooded. There were floodwaters through the Marine Board building in the Esplanade, the Bridge Hotel, the Gasworks - that was all underwater.

You wonder why the fathers of this city saw fit to build the Customs House and other significant buildings in an area that was supposed to be subject to regular flooding. As we all know, Launceston was supposed to get flooded every 30 years. We have not had a significant one since 1929 - that is 80 years. I believe, as I said, the collapse of the Perth Bridge contributed significantly to the 1929 flood. Another factor is that the



people of Launceston have seen fit to fill in the flood plain. Royal Park used to be part of the river system. There are photos available at the *Examiner* and other places which show the old Armitage Auction building in Canal Street used to be a waterfront warehouse. There was a canal there, at the bottom of this hill, only 200 metres away.

The river now is 200 metres further away. The Riverview Hotel used to be a waterfront hotel. The original hotel on that site was a hulk and it was turned into a drinking establishment, I believe, by the proprietor. The hulk was dragged out of the river onto the bank and used as a warehouse so the waterfront was there. The Riverview Hotel in 1929 - there are plenty of pictures of that - had water well up to its windows. We have changed a lot, we have filled in the flood plain and we have made the flooding much worse than it ever was.

If you look at pictures taken around Longford after the 1929 flood, you will see the effects of that flooding. The water obviously rushed through that town, moving houses off their foundations - houses that had been through minor floods - moving telegraph poles and power poles and that sort of thing because of the effects of the water. That is what happened.

How can we alleviate future flooding? The first thing I would suggest is, as was also highlighted by reports back in the 1930s after the 1929 flood, that the critical part of the Tamar River was the escape of water from Home Reach. Silt lines were established by, I think, the McCabe report and the city engineer, Potts at the time, also investigated this. In the 1950s, Munro reported that one of the critical factors was the area between Trevallyn and Invermay, bordering Home Reach, where the water had to be allowed to escape. What has happened in the meantime is that by filling in those flood plains with silt we have actually restricted the river. A 1929-size flood may be even worse because we have restricted the escape of the water by filling in those flood plains.

That is pretty much what I have to say except I would suggest that the South Esk River should have weirs across it at least at three or four sites. These weirs would act as silt traps. They would, as has been done in other parts of the world, have drains in flood times to direct water into farmland and areas not inhabited. They may even provide water for irrigation. They would have the effect also of reducing the flood effect lower down in the river. In effect that was what was happening with the Perth Bridge until it collapsed. It was retaining the water but once it collapsed then it made it worse.

**Mr WING** - With logs and trees?

**Mr ATKINSON** - I believe haystacks. The flood was in April and many of the farmers would have haystacks in their paddocks.

**Mr DEAN** - It has been suggested to us that during the normal flows and so on little if any silt comes down that river. It is only in times of heavy rain or flood that probably a lot of silt comes out of the river. In that situation the weirs would not perform much of a block because in flood or heavy rain the water would pour over the top and would still bring the silt down. Do you subscribe to that view?

**Mr ATKINSON** - That probably is true. However, after the 1929 flood the silt in the Tamar was actually lower than it had been for many years because of the scouring effect. So the

silt that comes down with the flood is not such a problem and the silt that is in the river is not such a problem because it is soft and with increased turbulence in the river it is actually removed - flushed out to Rosevears where I live.

**Mr WING** - And it comes back up.

**Mr ATKINSON** - That is a question that I think should be verified. There are still more studies that need to be done. The river silt in front of my place is actually disappearing rapidly. In the last few years there would have been at least a metre. It is now down to the old shale and gravel base.

**Mr WING** - Disappearing down stream?

**Mr ATKINSON** - It is disappearing off the banks. The rice grass is collapsing. Where the silt is going to, I am not sure. I am not in a position to know but it is certainly disappearing. Whether it is going into the channel itself or -

**Mr WING** - There is a body of opinion to say that silt downstream is washed back upstream because the incoming tide is stronger than the outgoing tide, so silt further down the river is usually washed back up.

**Mr ATKINSON** - I have noticed that some of the cruise boats that use the river use the river at all tides. In the old days the shipping tended to be on the high tides. Most of the mud banks were actually covered and so the wash from the shipping had very little effect, I believe. However, the cruise vessels, although they are much smaller than the old trading vessels that used to come up the Tamar, do make quite a bit of wash and I have noticed that they do disturb the rice grass banks and that sort of thing. If it is on the outgoing tide I assume that mud goes further down the river and if it is on the incoming tide it probably goes up the river, I am not sure.

**Mr WING** - If there were a statutory authority, a single one with jurisdiction over these areas, do you think it could investigate those matters - another advantage of having a single authority?

**Mr ATKINSON** - It is an advantage because, as I have said, there are up to 40 groups apparently interested in this river and you are splitting your finances and your authority. I agree wholeheartedly there should be one single group.

**Mr WING** - With jurisdiction, as you have said before, over all areas - Hebe Reef to -

**Mr ATKINSON** - To the source of the South Esk and all its tributaries, the 10 000 square kilometres of catchment. There should be one authority over it and I believe in other parts of the world this has been done. The most famous example, of course, is the Tennessee Valley Authority in America.

**Mr WING** - The Thames was another one, too. I am not sure what that was called, it was not the Thames River Authority, but it had a very beneficial effect.

**Mr ATKINSON** - The Tamar estuary is not a unique situation by any means. There are hundreds of other river estuaries around the world that suffer from siltation and flooding.

It is not an insoluble problem and I believe there are other ways that the problem could be solved.

I would just like to go back to what I was saying before about where the flooding occurred in 1929 and what was so different. We had three significant floods in the nineteenth century, I believe and, according to records, one bigger than the 1929 one, and yet in the early 1870s the railways were built at Inveresk on the flood plain. At that time it was probably the most significant capital investment the State had ever seen and they put their headquarters there. The Launceston City Council in the early 1900s put their tram depot in Invermay Road. Were these people not aware that those areas were subject to regular flooding?

If you look at the Wherrett book of photos of Launceston taken in the 1940s it shows a picture of the esplanade looking east towards Customs House on the right and the old Queens Wharf on the left on the North Esk River, which was used as the main shipping point before Kings Wharf was built and before the Charles Street bridge was built. If you look at those photos it shows quite clearly there was no levee bank there at all. There was no levee bank in front of the Customs House.

**Mr DEAN** - On this side?

**Mr ATKINSON** - Yes, between the Customs House and the North Esk River was Queens Wharf, I think it was called, and it had quite distinctive sheds for storage of goods and the trucks and wagons used to back straight up to that wharf and collect their loads that had come off the vessels moored in the North Esk River, and there was no levee bank there. So what should be determined is why 1929 was so much different from prior occasions. I think you have to look at the activities of people, as activities of people can always be changed. I think a single authority should investigate that and then be responsible for managing those changes that are necessary.

**CHAIR** - That example that you make about the Customs House, when were the levees constructed in Launceston?

**Mr WING** - It was 1960-61.

**CHAIR** - And the example you are giving of the lack of a levee there - it was 1945, did you say?

**Mr ATKINSON** - Yes. The photos were taken by Doug Wherrett, I think. There is a book in the library showing the Launceston area and it shows quite clearly - there are several other photos taken along the Esplanade, which is a vital part of the city. You have all those warehouses - Roberts Stewart, the military barracks, Customs House, built in 1888. I used to work in the Customs House and observe the river. What got me interested initially was Warwick Smith's suggestion that there should be a weir across the North Esk River to keep it full of water. I used to watch the river come and go every day and I wondered what the effect would be. As I said, I used to work upstairs in the Customs House and my office used to overlook the North Esk River so I observed the river coming and going and the floods from the South Esk going back up the North Esk River regularly. There is a lot, I think, still to be determined. There have been numerous reports on the river.

There is one other thing that I am not sure has been investigated. When we change things in the river the effects can be unclear and long term. There has been a significant change to the Tamar River. In the 1960s, Garden Island was joined to the western bank of the river and that removed approximately 50 per cent of the width of the river at George Town. The tide absolutely races past Garden Island these days, but what effect has that had on the rest of the river system? That is something I believe needs investigating, if it hasn't been investigated. I think it could have a significant effect on the tidal flow along the whole Tamar River.

**Mr DEAN** - You often wonder why an incoming tide has to be much stronger than an outgoing tide, don't you?

**Mr ATKINSON** - Tides are a very complex thing. If you look at how they calculate tides, it is a science on its own. I am not an engineer, I am just an observer of the river.

One other thing I would like to add is the condition of the river. The water in the river itself is worse than it has ever been, in my experience. As a 10-year-old I used to swim on the sandy beach that was part of Royal Park. I would not like my dog to swim in the river in the condition it is in now, just by looking at the silt levels, let alone the bacterial quality - there has been some publicity about it.

**Mr DEAN** - There was some evidence given that that was probably man-made.

**Mr ATKINSON** - It was man-made, I believe. There were concrete groins going out into the river to retain it, but that sand was put there in the 1930s, I believe. It certainly would have been put there post-1929. That sand stayed clean up until the 1950s. I don't know what happened to it later, but it was a sandy beach. If you put sand there now, within a very short time it would be covered in mud.

**Mr DEAN** - Probably one tide.

**Mr ATKINSON** - Yes, depending on the condition of the river. It indicates clearly that the water is much dirtier than it used to be.

I believe part of the problem arises from the Launceston City Council sewage treatment works because in the 1950s sewage treatment was virtually non-existent. I believe that the Margaret Street sewer used to be retained until the tide started to go out when the gates would be opened or the pumps would be turned on and the sewage would be pumped into the river. Of course, the population was much smaller in those days and the sewage load no doubt was much less than it is these days so they probably could get away with that. There were three major outlets, I think, one in the North Esk, one in Margaret Street and the other at Foster Street.

**Mr WING** - That's not good for retaining sand in good condition.

**Mr ATKINSON** - The sand today would be covered in mud.

**CHAIR** - Gary, are there some final comments that you would like to make before we conclude?

**Mr ATKINSON** - I suggest that there is an analogy for what we are doing with the Tamar with a leaking roof. If it rains you would put a bucket under the roof to catch the water. Do you keep changing the bucket, or do you buy more buckets? It is the same with the silt. We keep digging it out and replacing it with more silt. We have to fix the problem at its source. We are running out of places to deposit the silt. What is the cost of any further silt removal? If we filled up the immediate vicinity of the river, on the flood plains and the flats near the Ti Tree Bend treatment station we have to start digging them out again. It is a never-ending exercise.

You wanted to know whether other rivers have similar problems. Ronald Wright, a Canadian who was a Massey lecturer on the ABC in 2004 wrote a book called *A Short History of Progress*. It is about the second city in Iraq, Basra, a very ancient city in what was called Mesopotamia. It has a history of almost 5 000 years. Ronald Wright tells us that Basra was once a seaport but is now 80 miles from the sea due to silt from the Tigris River.

We are dealing with something with an immediate problem but we need to ask about the situation in 50 years, 100 years or 200 years. Are we still going to be digging silt out of the Tamar and looking for somewhere to cart it to?

**Mr WING** - Or walking across the area that used to be a river.

**Mr ATKINSON** - Well the water is still going to come down.

**Mr DEAN** - Or as Errol Stewart said playing football on it because it is now a soccer oval.

**Mr ATKINSON** - The water still has to find its way out and the water will always win out.

What is the long-term solution? We are looking at short-term solutions at the moment by pumping silt out of the river. The only way is to look at the whole problem on a long-term basis and as an overall area or you cannot solve it. Launceston City Council has struggled with this matter for many years, but it is not just the Launceston City Council's problem. Launceston City Council and its ratepayers should not have to foot the bill and they should not have to go begging to the State Government or the Federal Government for funds. It should be a statutory authority financed, I do not know how, but it should have overall authority because the cost of a 1929 flood these days, in my estimation, would be something like \$500 million in damage. For the spending of \$100 million perhaps you can solve the problem forever and a day. You do not have an ongoing problem of spending \$10 million a year digging silt out of the river because that is what it is really going to take and next year you come back asking for another \$10 million - it is never ending. In 100 years' time you have spent \$1 billion and you still have silt in the river and you are still running around. You have to address the problem at its source. Other than that, I do not have much else to say, I do not think.

**CHAIR** - Gary, I will draw a conclusion there because it is 12.30 and Mr Brayford is waiting to give evidence, but we certainly appreciate your giving us the benefit of your experience of being on the river and obviously a lover of the Tamar River and the estuaries. Thank you very much taking the time to keep an eye on the development of our committee and being a contributor.

**Mr ATKINSON** - Thanks very much for your time.

**Mr WING** - There is some very interesting historical material.

**Mr ATKINSON** - There is a lot more I could really say. There are several solutions, I believe, but I do not know whether this is the time and place to discuss those. When your report comes out, how will that be handled?

**Mr WING** - You should receive a copy of that as a witness. That would be the normal practice.

**THE WITNESS WITHDREW.**

**Mr GEOFF BRAYFORD WAS CALLED, MADE THE STATUTORY DECLARATION AND WAS EXAMINED.**

**CHAIR** (Mr Finch) - Geoff, thanks again for agreeing to appear before the committee for a second time. Thanks for the arrangements you put in place for us to have a look at the Tea Tree Bend sewage treatment plant. As you can tell, it keeps coming up in the evidence that we have had and it will be a good opportunity for us to have a look just for our edification, if nothing else, on what is being developed there and how it works.

It is my intention, Geoff, to hand over to you for your presentation and then we will ask questions as we go.

**Mr BRAYFORD** - I have not prepared a big presentation as the committee has already received a presentation from the council and I am not seeking to go over those grounds. I will try to constrain myself in things that I will say to you initially to my particular interests of flooding and sedimentation, but I am open to be drawn on any questions the committee may wish to ask me.

Certainly, rivers generally have a void of jurisdictional responsibility. There are often many regulators who actually want to be involved in what other people may do to them but if there are problems with rivers then it tends to be the case that you cannot find anyone who wishes to be part of the solution or to take responsibility for the solution. Whether the problem is an accumulation of sediment or debris floating in the river or flood controls or flood mitigation structures, there is often no-one who has, if you like, an ownership responsibility to actually get involved.

To some extent that leaves rivers exposed to natural deterioration, if you like, because there is no maintenance agency. The previous speaker talked about many interested parties who wish to get involved and talk about it and there are natural resource management groups who will lobby for action but there is no responsible agency to actually take any action. So it is only by lobbying or seeking cooperation with people that things can happen.

Aldermen of the council and members here will know that the lobbying that has to take place for council for flood levees and for siltation has involved decades of negotiations in trying to actually get an answer.

What is clear in my mind is that there has to be a real alignment in whatever happens between a functional responsibility and a financial responsibility. If you get those responsibilities out of sync, if one person is responsible for a function but another party is responsible for financing there is a tendency for nothing to happen and it has to be really clear that those things have to be aligned. An analogy for that has been the 1975 flood levee agreement where council had the responsibility but the financial responsibility was elsewhere. Unless you get those aligned, nothing will happen because you cannot deliver a function without the finances. It must be clear: there has to be an aligned responsibility, otherwise it is a blame game after the event - 'We couldn't deliver our function because you never gave us our finances,' or 'We did not give you the finances because you never told us what you needed.' You need to remove uncertainties and that was certainly my experience in New Orleans that if you have overlapping jurisdictional

responsibilities that left any uncertainty or lack of clarity then that is a recipe for disaster, particularly when you are looking at very infrequent, long-term events.

The previous gentleman asked why our city forefathers built in certain places. The half-life for awareness of flood protection is very short. People get flooded and there is a despair and a despondency, but within a year they may have moved on. I think the same can be true for all natural disasters - bushfires and flooding events. Unless there is someone trying to keep the focus of the community on the potential for natural disasters, the experience and the education you gain from having them dissipates very quickly.

**CHAIR** - Geoff, if I could focus on New Orleans for a quick comment. You said you witnessed there uncertainty and a lack of clarity?

**Mr BRAYFORD** - Lack of clarity. There were numerous flood boards. There was not just one flood board, there were numerous county flood boards, sometimes working to different flood levels.

**Mr WING** - Was George Bush in overall control.

*Laughter.*

**Mr BRAYFORD** - No, I will not do my George Bush impersonation. But there was lack of certainty. It is true of a lot of models like this. Some of the commentary I have seen is that they had to push boards to align themselves with the business models and certainly some of the boards seemed to have been distracted into how they could lease the land that was in their control to produce revenue sources and that sometimes became their main focus of activity and not the asset management roles and the responsibility to maintain the flood levees. The US Army Corp of Engineers tends to build and design these things but these levee boards were to then look after them. There were jurisdictional problems. There was a fragmentation problem. Whose fault was it? Whose responsibility was it? It was aligned to land use planning too to some extent.

There is certainly a view - and I tend to share it - that flood mitigation structures or mechanisms are the best means by which you can encourage levees not to flood. It is often called the flood protection paradox. You build a levee to provide a certain level of protection and having achieved some level of protection you then encourage investment and more people to develop so that when the levees are perhaps over-topped by a larger flood you have more property damage. So you build bigger levees and you encourage property into it. The actual assessment mitigation structures tend to encourage that because you look for benefit/cost ratios and the benefits are always how much damage can I save by building or investing in a flood levee. The way to increase your benefits is to put more property in there to be protected. It is a countervailing approach sometimes. We ask how Invermay and the city ever get developed. Well parts of Invermay are clearly below high tides so that really questions what our forefathers were doing in developing below high tide. Certainly you start developing areas and my understanding is that people who worked on the docks or the lower socio-economic classes certainly lived on that side of the river and the city centre operated on this side. So some levees were built and some properties were developed and then floods came and bigger levees were built and then more property was developed. Eventually they drained the swamp and it grew and grew. There were levees on Invermay in 1929 which were over-topped.



So, eventually, the levees had to get higher and higher and with Invermay there is actually an absolute limit to the extent to which you can put heavy soil on those soft silts before you start getting foundation problems.

**Mr WING** - Is that just on the river frontage or further inland as well?

**Mr BRAYFORD** - Well, the soft soils go across the whole flood plain from North Esk River, except for the main street hill which is obviously a strong outcropping, where Kelsall and Kemp are, but certainly the lower lying areas were silt-accumulated. We certainly measure depths of 20 metres of silt. In other parts of the area we've measured 60 metres silt.

**CHAIR** - You've only got to stand in the Aurora Stadium and every truck that goes gives a sense of that.

**Mr BRAYFORD** - You see that on Goderich Street as well. At Charles Street Bridge you can feel it at the traffic lights. Certainly driving in the light towers at the Aurora Stadium your 15- to 18-metre pylon goes half a metre in the first hit and 15 metres on the next hit. So, it's a jelly. The area is difficult to build infrastructure on; that's just a natural consequence of what it is because that's where the floods used to wash silt. Without trying to research where the original confluence of the North Esk River was, the silt's washed into that area and developed Invermay and built it up but it was always a swamp in that sense and has always been that way.

**CHAIR** - Levees are built to protect that Invermay area, but what about the North Esk coming down into that area; does that fill up behind the levees? How does that work? Is there still drainage for the waters of the North Esk?

**Mr BRAYFORD** - The Invermay levee runs from Charles Street Bridge to Tamar Street Bridge and then it runs along the edge of the hockey fields and up to the hillside - that's the Scottsdale levy - along the line of the old railway line to Scottsdale, which is always called that. The North Esk doesn't deliver floodwaters behind levees unless the levees are breached, so it has a natural outflow through its current alignment because there are levees on the Invermay side and the city side so it's not constrained in that sense. But the North Esk does develop its flood level predominantly from what the South Esk is doing. So if the South Esk is in flood, because they're such significant sized rivers, whereas the North Esk is about 10 per cent of the catchment size of the South Esk, their peaks arrive at different times. The North Esk will arrive in 10 to 14 hours and the South Esk might take four days to get here. So the peaks arrive at different times but if the North Esk is flowing on its own we can handle it pretty well, although you will get some problems upstream around Cypress Street, Hart Street and Hoblers Bridge Road if it's the North Esk flooding on its own. Once the South Esk is in flood the level is predominantly driven by what the South Esk is doing and it's fairly flat level from the South Esk. You get a bit of increase around Black Bridge where it's constrained, but across Glebe Farm and up to Hoblers Bridge Road it tends to be a fairly flat regime, so it's mostly driven by what the South Esk is doing.

Some of the community observations in 1929 were that the North Esk was the cause of the problems. Part of that is driven by the fact that the South Esk comes roaring out under Kings Bridge, as we've heard, at high velocity and it would push back up the North

Esk; it would push the North Esk waters back. But the 1955-59 model study works done by Munro identified that the training wall - the grandstand in Royal Park; it's the grandstand to watch regattas but it's actually a training wall which says 'water, turn left' - by training that wall to turn water to the left and go down the South Esk River the flood level into North Esk River in the larger floods can be lowered by as much as 800 millimetres. That is a key part of our flood defence system; to get that water to turn left and go downstream.

Predominantly though, the floods are controlled. Even high tide does not tend to affect flood levels once you get into large flood analysis because the volumes are so significant. We've reviewed these 1929 figures recently in part of the studies we've been doing in recent times but I'll quote old figures because that's what's in the community and we haven't gone on to change the figures at all. For 1929 it was estimated to be 4 000 cubic metres a second; so that's 4 000 tons of water a second coming under Kings Bridge. For a small one-tonne car it's 4 000 cars a second; it's a lot of water. But the probable maximum flood, which is the biggest flood possible, is about 11 000 cubic metres per second, so nearly three times as much water. They originally designed the flood levees to cope with probably maximum flow so that the levees would never be overtopped. They did some good work on that but they didn't really contemplate the fragile nature of the support grounds at Invermay. You couldn't sustain the levees at those heights. The State Government agreement on flood protection at Invermay pulls the level of protection back to a 200-year frequency of protection. We can't go to the probable maximum flow because you can't sustain those heights. But because those volumes of flow are so large, the tide is not a big influence because the volume and the force can push the tide back. Even if we had an 800-millimetre sea level increase, the impact upon the flood level may be - and I can quote these figures later when these reports come clean - only 200-300 millimetres. You can see that a sea level rise of 800 mm might only have a lesser impact up here. That is generally true. Flood-plain filling is exactly the same. You might fill in the sides of a flood plain by two metres for silt ponds but it doesn't necessarily represent a two-metre increase in flood level, though it does represent an increase in flood level. If you take away waterway volume, generally speaking, in the moving waterway area it can impact flood levels upstream but it is not necessarily a 1:1 relationship. With flood levels, whilst silting has been an issue for us to deal with, UTRIA has spent 20 years housekeeping silt. We haven't tried to solve the problem because of our volume of money would never enable us to solve it. We have been doing the dusting, if you like. We are not getting ahead of the game. We admit that and we are not apologising for not doing that either because we are just maintaining -

**Mr WING** - And probably losing ground if anything.

**Mr BRAYFORD** - The reality is, in my view, that we have been doing the dusting - 30 000 cubic metres a second. I have some 1882 maps of the area that show significant mud flats; I also have an 1833 map. It tries to put the 1833 map in a cut-out form on top of a current aerial photo of the Tamar River. The small bit on the left-hand side clearly shows the Canal Street problems and the other issues that were talked about. Canal Street was absolutely a canal street because it was a canal. For all the area under Seaport, you can see where the waterway area was. Clearly in 1833 there were extensive mudflats; there were bars and rapids that aren't there now but there were extensive mudflats and an altered watercourse.

We have tried to snap the water area from that 1833 map and put it on a current aerial photo of the Tamar River. It doesn't scale exactly and it is an oblique angle as well. What we are trying to show is that generally the waterway area now at low tide is not a lot different to how it was scoped and measured in 1833. Whilst people say there is a problem, and there has been a noticeable change in silt over the last 40 years, I have never been wholly convinced that it is necessarily different to what it used to be. It is certainly different from when the port was very active and dredging up to 160 000 cubic metres per annum out of the river. UTRIA has been trying to do 30 000 cubic metres per annum.

The river will reach a balanced regime eventually where silt gets to a natural balance, where the inflow of silt matches the outflow. That will vary from year to year depending upon what river flows are doing. We believe, and I think that the reports are confirming it, it is about a natural balance now where it will not get significantly worse, it will still vary and fluctuate. This, in my mind, certainly reinforces that it is not too much different from what it was thought to be in 1833.

That is a natural process of silt accumulating and moving upstream. The reason it tends to move upstream, and I do not know why, is that the in-flow tide tends to be of a higher velocity over a shorter time for part of its cycle. That higher velocity drags silt with it, whereas when it goes out it goes over a lower velocity for a longer period of time. The same volume of water comes up and down but the velocity changes and it is not symmetrical and it is not uniform. So that tends to cause the silt to actually re-emerge, and that is true of most estuaries.

**CHAIR** - I was going to ask that.

**Mr BRAYFORD** - Certainly the Thames and the Channel cities in England exhibit it. You do not see it often because the tidal fluctuation is often is very small. Australia's eastern coast has a 4-foot tide variation. We have here a 3.6- to 4-metre tidal variation, therefore you see a lot more of the silt at low tide.

Unlike most historical photos that are photographs of rivers heavy in tide and heavy in ships, these were actually low-water maps, which we are very lucky to have. It will reach a point of natural balance. I believe that it is nearly there.

The balance between whether you can actually create a permanent large waterway area to lower flood levels and therefore should you put your investment into dredging or flood levees is a fine line. Because of that tidal influx and because of that propensity for there to be large volumes of silt accumulation downstream it is likely that our recommendations will be that the money is better spent on building flood levees because you can build it, you can do it and it is a capital cost initially.

Also the amount by which you can lower the need to build a flood levee by extensive silt is very small; it is a very small lowering of the flood levee by doing lots and lots of silt removal. The other prime challenge is that where the community wants silt to be removed from is in the yacht basin. Where we would need to remove silt for flood protection is downstream from Foster Street, Ti Tree Bend, Hunters Cut. So where people want it lowered is not where you would need to do it for flood reasons. You need to do it downstream to get waters away for flood protection.

But the community focus and activity and recreational needs and part of the navigational and tourism needs are upstream of that point.

**CHAIR** - Visual amenity.

**Mr BRAYFORD** - Visual amenity.

**CHAIR** - We heard some evidence this morning from Errol Stewart who was making the suggestion that it is quite an easy process to have a dredge move up and down a river to wherever you need it to go and then to off-load the silt onto farm paddocks to take it out of the river and to distribute it on the sides of the river. Can you give us your view on that?

**Mr BRAYFORD** - I am not sure what sides are left. I tend to agree with the last one. We have almost filled most holes that exist in the upper area. I agree, the silt ponds on the West Tamar is where we harvest silt; we do not fill it permanently, we put the wet silt in the ponds, we dry it out we take it away. Yes, those side flood plains have risen, I am not sure whether it is 2 metres but yes, that will cause an increase in flood level upstream but it is certainly not 2 metres worth; it might be 50 to 100 millimetres. The side flows of flood plains are the slower-moving areas. If you fill the higher velocity areas you will change flood levels significantly and that is the main channel. If you fill the flood plains you do increase flood levels but, again, it is not a one-to-one relationship. It is the slower-moving, low-velocity water you are taking away. So if you take away that water area your impact on flood flows and flood heights is less but you still have to be wary and prudent and cautious about filling flood plains.

I certainly would not want to go any more to filling flood plains. We want to be very careful about Hunters Cut and the area downstream of Ti Tree Bend on the other side. I am sure that you are all aware of Hunters Cut. It is an area that the port once started as a river navigation in-flood relief channel. But even the works done in 1955 showed that a lot of money could be spent on that channel but you might only save 150-200 millimetres on the flood level. So the cost return on downstream works and higher flood levees was not there, and I still believe that is the case. We want to make sure that both areas do not get filled but lowering them or taking silt off them will not significantly affect what we have to do now for flood levees so we need a cautious approach to it rather than a proactive approach to it.

**CHAIR** - Just a question from left field. When we had some time in Bangladesh we noticed there the silt in the flood plains coming down off Mount Everest and that they had a lot of brick factories established there to harvest the silt to make bricks to build homes.

**Mr WING** - The same in Hanoi.

**CHAIR** - What is the possibility or what are the limitations with harvesting the mud and making bricks out of it?

**Mr BRAYFORD** - Bricks are best with a clay content and there is certainly a very fine clay content in silt. It would depend on the fines to some extent. UTRIA has not gone out of its way to try to do downstream processing of silt but we have tried to encourage and

seek interest for people to actually participate in downstream processing where we could assist them. We get lots of people who will make inquiries for silt and it generally goes along the lines of, 'You are cutting your silt, can I have some?' and we say, 'Yes, certainly. What time would you like to come and get it and would you like to pay for it?' They say, 'No, I don't want to pay for it'. 'Okay, would you like to come and get it?'

**Mr WING** - Pay for the silt or the transport?

**Mr BRAYFORD** - We always start by trying to underwrite the dredging process by saying, 'Yes, we'd love you to have it, would you like to pay for any of it?' and the answer is always no. 'What time would you like to come and get it?' and they say, 'I wouldn't like to come and get it but can you drop it at my place?' and that is far as we get. People will take it if we deliver it to their house but no-one has expressed interest in a commercial undertaking.

There was some optimism quite a few years ago when a former dredging operator acquired the old Besser factory on George Town Road and there was the potential that they were interested in actually being able to turn some silt into bricks. You would want to have a large operation, I expect. I am not sure where they actually make bricks now in Launceston. They certainly have in the past made bricks at Machen's at Kings Meadows and other areas.

**Mr WING** - I think they make them at Longford.

**CHAIR** - Or at Island Block and Paving.

**Mr BRAYFORD** - I am not sure whether they are imported because it is not a market I have particularly investigated. Our silt is a very fine talcum powder-like silt, so I don't know whether it has the right consistency and coarseness to make a good quality mud for a brick to our standards and expectations in the housing industry. I am not sure but we have never been able to attract any interest. We would be happy to assist people to do it but no-one has ever wanted to do it. I would say it is probably a hard product to work with. If you see silt when it dries out it fractures significantly; there is a lot of shrinkage in it. The natural clays seem to be of adequate supply that people do not have to trouble with the difficulties of perhaps working with silt so it has never attracted anyone. We have not done the test.

In the current study that we are doing, we have looked at consultants to advise us on the use and reuse of silt. People have only ever been able to come back with filling low spots. There is a point where we cannot fill any more low spots in the town and we have to think of moving it elsewhere. There is still some residual filling we can do in the council's recreation area at Churchill Park in the soccer fields and the recreation area and we can move silt there. We do not want to take silt to the tip and we try to avoid doing that.

We look at opportunities particularly when we are going to rebuild flood levees where we are going to source flood levee material from the countryside. We will look at backloading trucks with silt but all we are doing is underwriting the cost. We have struggled and never found a viable market for silt products and at 30 000 cubic metres per annum it is not an inconsiderate volume that we would have to find a market for.

**CHAIR** - There was a suggestion about the transportation of the silt through a pumping system over a 6 kilometre distance and we have heard about how economically unviable that is. Just in an engineering sense, if you pump it up and then you get the draw from where you are depositing, does that help with the energy needed to pump? Does that suck the silt through?

**Mr BRAYFORD** - No, you still have to push to head upstream. It is feasible with volumes, but without having designed it, to install a pipeline of perhaps up to 9 kilometres with a diameter of 350 mm, I think I calculated that within the pipeline there would be 10 000 cubic metres of volume. If we are only going to do 30 000 cubic metres per annum, one-third of that would be filling up the pipeline. It becomes more viable if you are going to run it on a 24/7 arrangement but that implies a lot of funding. You could not do it for our volume of work because one-third of the annual volume would be needed to fill the pipeline. If you build the capital works to do that and run it for five, 10 or 15 days a year, your capital investment is just sitting idle for the rest of the year. I think Port Latta is often a reference; Goliath pumps cement and stuff through it. If you run it 24/7, you can justify the expenditure but there is still a large operating cost. We run 30 000 cubic metres a year and the prices are pushing between \$15 and \$20 a cubic metre and we have roughly \$500 000 a year to provide the sediment source.

**CHAIR** - Could you not use a smaller pipe, Geoff, and make it moveable so that we get more out of the river further upstream?

**Mr BRAYFORD** - To some extent we have done this already with large operations. If you put a pipeline on the ground with different manifold points you can move the dredging and connect in at different points. We have some already where we can connect it at different points so we can move between Foster Street upstream, on the eastern side only. You have to have plenty of booster pumps, but if you run a smaller pipeline you have to put enough water in it to keep it liquid and moving but it is a wasted effort because you are pumping water. You try to minimise water but you run the risk of blocking the pipeline. When you block a nine kilometre pipeline with silt you have to get it unblocked quickly. You need to weigh up your options when making it small enough so that it is cheaper. A smaller pipeline often requires more energy to push it through. You certainly need more energy to push it at greater velocity in a smaller pipeline. There is a balance. It would have to be designed and analysed and it will be part of the option study that the current consultancy will look at. It would be challenging on our current funding levels to have a large capital investment program like that.

**CHAIR** - Is there anything else, Geoff?

**Mr BRAYFORD** - Yes, I would just like to leave some copies with you. This is the 1911 petition by the community against the horrible nature of silt and dredging and how they cannot put up with it. It talks about the city council's sewage treatment practices and the horrible nature of the water quality. It is no doubt because we did not have sewage treatment plants. In 1985, when I first came here, there were no treatment plants for the Killafaddy abattoirs. I think water quality is significantly better than it was 20 or 30 years ago. Waterbirds are returning. It think it is significantly better than it was in the 1940s when there was no sewage treatment. There are certainly more works that the council can do and should do with its sewage treatment plants, but I think having

abattoirs not dumping directly into the North Esk River as they did 20 years ago has to be an improvement. Certainly the silt accumulation is more obvious since the PLA stopped and we are approaching 1833 silt levels.

**Mr WING** - So things are better, but not good?

**Mr BRAYFORD** - The city suffers a burden. It does have a combined system, as most of you would know, so during storm events diluted effluent is released. It is a water quality issue that needs more investment, and all our treatment plants need more investment. That is virtually universal for the State. That is the one of the motivations for the State doing the water and sewer review, to improve the level of protection. In the documentation it says that lots of treatment plants don't comply. More work is needed. The city council itself has a \$45 million investment program for sewage treatment plant upgrades.

I will talk more about silt - I haven't talked much about statutory authorities. There is a lack of ownership issue and a need to coordinate things. I talk about fragmentation and there is a risk that needs to be managed. People are aware of the risk and are now seeking to try to manage it. Water and sewer transfer will take the common drainage pipes out of the council's hands to the water and sewer corporation because they are sewers that run stormwater occasionally. There is a need to understand that the consequence of that is that a sewer and water corporation will take those combined drainage pipes and that is probably the only drainage issue they will have to deal with in the city. Those drainage pipes run down to the river edge where they meet sewer and stormwater pump stations, which pump sewage to the treatment plants and stormwater over the flood levees. They will be run by the water and sewerage corporation because they are sewer pump stations most of the time. Those sewer pump stations are sitting in the middle of flood levees, which will be owned by council. There will be penetrations underneath the flood levees, which will be owned by the sewerage and water corporation. There is a real potential, unless well-structured and coordinated, for there to be multiple jurisdictional responsibilities about pump stations sitting in flood levees owned by two different agencies with different responsibilities. It needs to be ensured that it doesn't become a fragmented, uncertain responsibility for all because penetrations are the cause of levee failure. There is a real need to coordinate and understand that activity. I think most people are aware of it. I think it has been raised in the upper House. It needs to be resolved if it is not yet resolved. People are moving towards trying to understand alternatives for the resolution of it, but it is a fragmentation that has potential at the moment to lead to uncertainty.

I won't comment upon a statutory authority that has a greater regulatory role. Previous speakers today talked about the fears about regulations and controls. There are plenty of people interested in regulation and not many people interested in solving. It is a very big question to look at a statutory authority has an on-land regulation role because that is overlapping town planning schemes and all those sorts of things. In terms of river management, river-edge management, people will manage the resource - the water. There are lots of people interested in managing the water, how much they can take out of it, but if a river needs maintenance, whether that is sediment or flood levees, there is no-one taking that level of responsibility. Land is either privately or publicly owned. If it is publicly owned, there generally tends to be an agency that is identifiable as a responsible management agency. That is not true with water. It used to be almost true, I guess, but it

has become less and less over the last couple of decades. Obviously responsibility implies a need to take action and find funds and that is becoming particularly challenging for governments.

**Mr WING** - Or to be given funds and take action.

**Mr BRAYFORD** - Yes. If it has functional responsibility it needs to have financial opportunities to develop the funds it needs to fulfil those responsibilities. There is clearly a need for that. If you look at the Victorian sewerage and water reviews, Melbourne Water has a regulatory role and a customer business role. It also has often a drainage pre-flood protection role. It needs to gel with those other roles because they are inter-related and we don't have that at all in Tasmania. There is often no drainage management at all. Unless councils do it, there is nobody who looks after it. Unless it is in a business role, like the Hydro can manage waters to produce revenue for power generation, apart from that there tends not to be an agency that looks at large volumes of water. If you want to extract water from a creek, someone will regulate that. But if there is excess water there is often little regulation.

**CHAIR** - If you want to build a dam on your farming property -

**Mr BRAYFORD** - Someone will regulate that. If you want to build a levee on your property someone will regulate that. But if there is a need to build a levee publicly or if there is a need to actually look at large river erosion, then councils are on their own. The NRM North and TEER group they will look at lobbying and coordinating activities and they often very successful in getting capital grants. Once things are built they have got to be looked after. The issue is ongoing regular maintenance. It is no good building things if no-one is going to look after them. Some one has to.

**CHAIR** - That is a council concern. Councils would be concerned about that in their bailiwick.

**Mr BRAYFORD** - If councils build assets they have to know they can afford to look after them. Everyone has to know that they can afford to look after the assets that are built because they do need maintenance. Rivers are no longer considered assets because they are natural and I tend to be a low interferer in rivers - you try and let nature run its course rather than turn it into what you want to be. A river is a river. If you stop it doing this it will go and do that. It is a fine line between whether there a problem to be solved or whether we just do not like the look of it.

**Mr WING** - Both, I think it is both.

**Mr BRAYFORD** - If we do not like the look of it then we have got to decide whether we should be seeking to change nature because nature is nature. There is bio diversity in mudflats, such as they are. They can look appalling, I think that they often do, but there is a balance in that we have to decide whether we want to change it because we do not like it or whether we are changing it because it is more useful if it is something else. Then what are the benefits and the detriments of changing nature? We have already heard that we have significantly altered our river edges in the past. I could talk for hours!



*Laughter.*

**CHAIR** - Geoff, we appreciate very much your time, your presentation and your knowledge about the issues of the Tamar Estuary as well as this way of managing the solutions. We will meet you at the treatment plant at 2.15 p.m.

**THE WITNESS WITHDREW.**