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18 October 2016

The Research Director
Agriculture and Environment Committee
Parliament House
George Street
BRISBANE QLD 4000

Dear Sir/Madam

**Submission to the Inquiry on the Auditor General's Report 16 - 2015-16:
*Flood resilience of river catchments***

Seqwater, South East Queensland's bulk water supply authority, welcomes this opportunity to provide input to the inquiry into the Queensland Auditor General's (QAO) Report 16 - 2015-16 *Flood resilience of river catchments*.

Seqwater's response to the report's recommendations is detailed in Attachment 1.

About Seqwater

Seqwater is one of Australia's largest water businesses with the most geographically spread and diverse asset base of any capital city water authority. Our operations extend from the New South Wales border, to the Toowoomba ranges and north to Gympie.

Seqwater has a legislative obligation to provide safe, secure, resilient and reliable bulk water supply for South East Queensland, including supplying up to 1200 irrigators in seven irrigation schemes across the region. Seqwater also provides essential flood mitigation services and is the largest provider of open recreation space outside of National Parks in SEQ.

In contrast to other capital city water authorities, including Melbourne and Sydney, Seqwater owns very little land around its dams, managing around 65,000 hectares or less than five per cent of the total watershed and catchment area. SEQ drinking water catchments are also the most highly developed and open in the country, with an average 2.6 million people visiting each year. Not only do we own a relatively low percentage, our legislative authority is limited. Seqwater and our responsibility to manage water quality is recognised as a State interest in the State's planning policy. This requires local Councils to incorporate our drinking water catchment development guidelines into local planning schemes. However, interpretation of the guidelines and their application rests with local Councils. Seqwater's involvement is limited to advice, with Councils being the final decision-makers.

This means we need to work closely with Councils, industry, our immediate neighbours and the broader community to better manage water quality, the environment and to improve flooding outcomes. These close working relationships and advocacy can only go so far in providing integrated advice to decision makers.

Submission overview

Seqwater supports the pursuit of integrated whole of catchment management outcomes for SEQ. Seqwater notes that the QAO audit examined the effectiveness of flood resilience activities since 2011, focusing specifically on the Bremer, Lockyer, Mid and Upper Brisbane River catchments.

Seqwater believes it is important to note that in managing flood impacts in SEQ, there are two distinct focus areas:

- Improving the resilience of catchments to flood events
- Improving the resilience of communities and infrastructure within catchments to flood events.

Both focus areas may require different governance, funding and integration models. Seqwater is a significant contributor to both.

It is Seqwater's view that any integrated catchment approach needs to incorporate all of SEQ, while acknowledging the specific importance of the Mid Brisbane and Lockyer in particular, to both drinking water supply and flood outcomes. Wivenhoe and Somerset dams directly upstream of the Mid Brisbane and Lockyer catchments provide up to 40% of the SEQ's drinking water.

To that end Seqwater has been part of the SEQ Council of Mayors Resilient Rivers Initiative since its inception in 2014. The initiative aims to develop a regional integrated approach to catchment management, including a more coordinated approach to catchment investment. Importantly from Seqwater's perspective, the initiative allows for a prioritisation of key catchment works and an investment approach which allows partners to leverage off each other's funding contributions.

The initiative recognises that improved water quality is just one beneficiary of catchment restoration. Improved catchments also deliver a range of other environmental and economic benefits including improved farming lands, sediment reduction in Moreton Bay and the Port of Brisbane, as well as improved flood outcomes. To date Catchment Action Plans have been developed for the Mid Brisbane River and the Lockyer Valley.

Both the 2011 and 2013 major flood events dramatically highlighted the adverse impact of the degraded conditions in Lockyer, Mid and Upper Brisbane River catchments river bank stability and consequently water velocity, flooding impacts and water quality. The Mt Crosby Water Treatment Plants (WTPs) source water from the Mid Brisbane and are the main source of supply to the greater Brisbane region. Producing a secure and high quality drinking water supply depends on source water quality to be consistently within a specific range that suits the treatment plant capability. However, water in the Mid Brisbane River has highly variable quality as the river is subject to a range of catchment conditions, flood events, prolonged droughts, agricultural, recreational, and industrial uses. This is unlike the situation in many capital cities in Australia where the city water supplies are sourced from protected or closed catchments, and in some cases piped to treatment plants further preventing inflows from potential contaminants.

Since 2011, Seqwater has worked closely with the Australia Rivers Institute (ARI) at Griffith University to improve our understanding and knowledge of what actions are required to maintain, as well as improve the water quality sourced from the Lockyer and Mid and Upper Brisbane River catchments. Actions that improve catchment resilience to mobilising sediment and other pollutants during flood events, would generally also support the abatement of water velocity and downstream flooding.

The *Mid-Brisbane River Stabilisation Strategy 2014*, commissioned by Seqwater and undertaken by the ARI, identified a range of criteria to prioritise rehabilitation along the river and has significantly shaped Seqwater's catchment investment strategy.

Over the next decade and beyond Seqwater intends to increase its annual investment in catchment management from \$4 million up to \$15 million. Seqwater in its submission to the Queensland Competition Authority on 31 July 2014, indicated a potential spend on natural assets of the region's catchments of \$115m over 15 years, with 11 project and programs of forecast expenditure greater than \$2m. Seqwater is keen to value-add to this investment with other parties, including Councils.

Seqwater has also developed a range of partnerships with local catchment groups across the region to better coordinate on-ground catchment investment and rehabilitation work.

Seqwater has been an active partner in the Brisbane River Catchment Flood Studies (BRCFS). We view the outcomes of these studies as critical input into the investigations being undertaken by Seqwater over the next three years, to consider options to improve the flood mitigation performance of both Wivenhoe and Somerset dams. The investigations form part of an overall study looking at the safety upgrades required for both dams into the future.

To date the BRCFS has improved Seqwater's understanding of the likelihood of events which directly impact on its assets from a flood management capacity, dam safety, as well as source water quality perspective. Future work to be undertaken by BRCFS will further enhance our understanding of the economic impact or potential damages cost reduction associated with a range of upgrade options. It is important to note that the economic analysis needs to extend to cover rare and extreme events (much larger than inundation from historical floods) so that residual flood risk can be properly evaluated. This information will be critical in the development of a robust value proposition and business case for any future upgrades.

Seqwater notes the QAO audit finding that the absence of a coordinated strategic approach was "*a missed opportunity to integrate mitigating flood risk with other elements of catchment management, such as water quality, biodiversity and leisure activities*".

Seqwater notes that the QAO's position is consistent with a more overarching regional approach, which would focus on delivering long term sustainable outcomes for the region and which would ensure a more shared responsibility model. This has comparisons with other Australian jurisdictions including Victoria and NSW, which have established dedicated catchment authority(s) with responsibility for catchment improvement planning, as well as on ground works. While the interstate models may not ideally match all of SEQ requirements, Seqwater believes they merit further investigation and consideration.

However, in the absence of a dedicated entity, Seqwater agrees that it is important that the Department of Infrastructure, Local Government and Planning, the Lockyer, Somerset, Ipswich and Brisbane City Councils, and Department of Natural Resources and Mines be resourced and deliver their work in a coordinated and timely manner. Their efforts will have a direct impact on Seqwater's ability to meet its legislative obligations in terms of required dam upgrades as well as the optimal operation of Wivenhoe and Somerset dams into the future. It will also be important to ensure this work is coordinated with other initiatives that aim to improve catchment management for a range of purposes, including individual entity investment programs as well as other regional initiatives.

In summary, given the state of the catchments, the nature of Brisbane being built predominantly around a flood plain, the variable and sometimes extreme weather patterns, an integrated approach seems self-evident to protect and improve catchments and the people that live within them. Even at a more granular level significant catchment investment and rehabilitation is not something Seqwater is capable of pursuing either now or into the future without the involvement from other stakeholders, including the State Government, local government, industry and individual land owners. Catchment improvements have a much wider social and economic purview than water treatment or flood impact management and as such a holistic examination and engagement of stakeholders, beneficiaries and broader economic benefits is required.

Yours sincerely



Jim Pruss
Acting Chief Executive Officer

Attachment 1 – Seqwater’s submission on the Auditor General’s report on Flood Resilience of River Catchments

Recommendation	Submission	Comments
<p>We recommend that, in the absence of stand-alone catchment management authorities, the Department of Infrastructure, Local Government and Planning:</p> <p>1. fulfil its obligation under the State Disaster Management Plan to drive the enhancement of flood resilience in the four catchments by:</p> <ul style="list-style-type: none"> ▪ coordinating flood resilience activities and funding at a state and catchment level ▪ developing strategies and plans, in consultation with the four councils and relevant entities, to effectively identify, assess, prioritise and manage catchment scale flood risks using an integrated catchment management approach ▪ assessing the capacity and capabilities of the four councils and supporting them as necessary in building flood resilience in the catchments and in their local areas. 	<p>The quality of flood resilience planning directly affects Seqwater operations and future investment decisions. Life safety should be given the highest priority and emergency and evacuation plans needs to seriously plan for rare and extreme events beyond the defined flood event typically used for land use planning.</p> <p>Integrated catchment management is essential to delivery of flood resilience outcomes and Seqwater notes the considerable coordination challenge this presents.</p> <p>Seqwater also notes the importance of including all catchments across the region as part of any integrated regional catchment management plan.</p>	<p>Seqwater’s ability to provide optimised flood mitigation services for the Brisbane River is dependent on Government(s) being properly informed of the consequences of flooding across a wide range of flood events including rare and very extreme floods that have very low probability. The Wivenhoe Dam Optimisation Study (2014) identified complex trade-offs for flood mitigation and water supply operations. Government can only make these trade-off decisions in the best interest of the public if consequences are adequately quantified. In addition to Seqwater’s interests for flood mitigation services, good definition of flood consequences is an essential ingredient for flood resilience for the greater community, and environment.</p> <p>For example, understanding the level of impact that a wide range of flood flows has downstream of Wivenhoe Dam will impact the economic analysis of potential upgrade options and therefore development of a robust value proposition and business case.</p> <p>It is important to note that the economic analysis needs to extend sufficiently to rare and extreme events (much larger than historical) so that residual flood risk can be properly evaluated.</p> <p>If the Brisbane River Flood Plain Management Plan does not do it adequately it will need to be done later by Department of Energy and Water Supply and</p>

		<p>Queensland Treasury at additional cost and delay.</p> <p>It is also important to note that life safety should be given the highest priority over and above economic and environmental issues. Emergency management and evacuation planning is essential.</p> <p>The Fernvale and Lowood communities downstream of Wivenhoe are key examples and when developing plans, rare and extreme floods beyond the typical defined flood event, need to be taken into account. For the Wivenhoe Dam upgrade planning the implications for evacuation of these communities in rare and extreme floods will be as important as economic evaluations.</p> <p>In the absence of an overarching Authority, it is important that the Department of Infrastructure, Local Government and Planning be resourced appropriately and work closely with Lockyer, Somerset, Ipswich and Brisbane City Councils, and the Department of Natural Resources and Mines to deliver the outcomes required.</p> <p>Seqwater notes the considerable co-ordination challenge involved.</p>
<p>2. As a matter of priority, establish what funding is reasonably required and complete all elements of the Brisbane River Catchment Flood Studies.</p>	<p>Seqwater supports that the funding required to reasonably complete the Brisbane River Catchment Floodplain Management Strategy and subsequent development of detailed Management Plans and governance arrangements be</p>	<p>The results of the Brisbane River Catchment Flood Study will provide significant new intelligence for risks of Seqwater being able to deliver its legislative obligations. For example the BRCFS has improved Seqwater's understanding of the likelihood</p>

	established and provided as a matter of priority.	of events which directly impact on its assets. This will enable Seqwater to plan accordingly to reduce impact of flood risk to the water supply to the consumer.
3. develop floodplain management plans in accordance with Recommendation 2.12 of the Final Report of the Queensland Floods Commission of Inquiry	Seqwater submits that the floodplain management plans need to be delivered as they are an essential input to our planning for future asset investments. The floodplain management plans need to account for residual risk which is the risk that remains after risk control measures are put in place. This emphasizes the importance of understanding life safety and economic consequences of rare and extreme floods (beyond the typical defined flood event used for land use planning)	Seqwater is planning a series of dam safety upgrades of the order of \$1billion over the next 20 years. The costs and benefit in terms of risk reduction is highly dependent on the quality of information available on the downstream impacts of flood events. These costs may escalate significantly if there is inadequate consideration of residual risk (rare and extreme floods) or inadequate consideration of emergency evacuation and response planning for life safety.
We recommend that the Department of Natural Resources and Mines and the four councils: 4. work together to effectively and economically regulate levee banks.	Seqwater submits that co-ordination across the councils is required to take into account downstream impacts.	Levee banks can have an impact on the stability of the waterways which can directly impact water quality during floods and afterwards until the natural functions of the stream recover. The downstream and upstream impacts of levee banks need to be taken into account prior to their approval. For example the catchment for the Mt Crosby Water Treatment Plants, which supply in excess of 1 million people in Brisbane, covers multiple local government areas. Coordinated regulation of levee banks is required to ensure that downstream and upstream impacts are taken into account prior to approval.

