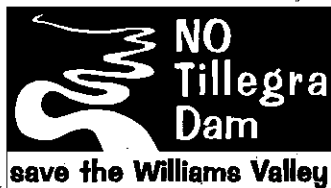


INQUIRY INTO ADEQUACY OF WATER STORAGES IN NSW

Organisation: No Tillegra Dam Group

Date received: 2/08/2012



Subject - Inquiry into Adequacy of Water Storages in NSW

Although *No Tillegra Dam Group* (NTDG) is aware of the terms of reference for this Government Inquiry, it is our belief, that by only examining aspects relating to dams/water storages there is a fundamental failure by the Government to address issues around long-term water planning across NSW. So, in this sense, the inquiry is flawed with limited outcomes.

This aside, the following points outline why traditional supply methods such as dams are problematic (General) and why in the Hunter (Hunter Specific), no new dams should be built.

General

Dams cause significant economic, environmental and social costs. These costs include the financial burden to water rates payers, the debt burden on a State owned enterprise, the loss of river ecosystems and serious threats to biodiversity. Other options, therefore, should be explored, based on the lowest impact for the required water.

According to The World Commission on Dams (*Dams and Development: A New Framework for Decision-Making. The Report of the World Commission on Dams, 2000*) large dams have been at best only marginally economically viable with the average cost overrun of dams at 56%. Dam costs cannot be compared to comparatively low cost water conservation and demand management strategies. Since 1998 the number of dams in the US has been falling and their rate of commissioning has fallen behind that of their decommissioning.

In view of the large-scale problems and risks associated with large dams, the current trend is towards the decommissioning of large dams. According to the World Commission on Dams (WCD), momentum for river restoration is accelerating in many countries, especially in United States, where nearly 500 dams, mainly old small dams have been decommissioned. Since 1998, the decommissioning rate for large dams has overtaken the rate of construction in the United States (WCD, 2000). In the United States, where its 5,500 large dams make it the second most dammed country in the world, the building of large dams has been stopped and a huge amount is being spent on trying to fix the problems created by the existing dams. In fact the social and environmental benefits in removing dams outweigh the costs of maintaining them. In the US 200 dams were removed in 1990. These statistics need to be heeded by policy makers in Australia.

The *World Commission on Dams* research also shows that as soon as a dam is decommissioned, the river that it dammed can be restored to its former natural health. This is particularly relevant in the Australian context with so many rivers now regulated to their detriment.

The environmental consequences of large dams are numerous and varied, and includes direct impacts to the biological, chemical and physical properties of rivers and riparian (or "stream-side") environments. The dam wall itself blocks fish migrations, which in some cases and with some species completely separate spawning habitats from rearing habitats. The dam also traps sediments, which are critical for maintaining physical processes and habitats downstream of the dam (include the maintenance of productive deltas, barrier islands, fertile floodplains and coastal wetlands).

Another significant and obvious impact is the transformation upstream of the dam from a free-flowing river ecosystem to an artificial slack-water reservoir habitat. Changes in temperature, chemical composition, dissolved oxygen levels and the physical properties of a reservoir are often not suitable to the aquatic plants and animals that evolved with a given river system. Indeed, reservoirs often host non-native and invasive species (e.g. snails, algae, predatory fish) that further undermine the river's natural communities of plants and animals.

The alteration of a river's flow and sediment transport downstream of a dam often causes the greatest sustained environmental impacts. Life in and around a river evolves and is conditioned on the timing and quantities of river flow. Disrupted and altered water flows can be as severe as completely de-watering river reaches and the life they contain. Yet even subtle changes in the quantity and timing of water flows impact aquatic and riparian life, which can unravel the ecological web of a river system.

The WCD's conclusion as to the record of the dam industry was unequivocal: *'In too many cases, an unacceptable and often unnecessary price has been paid to secure the benefits of large dams. Moreover, the burden had fallen disproportionately on the poor, other vulnerable groups and future generations, causing the impoverishment and suffering of millions.'*

There is now more than enough evidence to show that large dams are a major source of climate-changing pollution. An efficient focus on other options, including demand management and water conservation strategies precludes the need for dams.

Recently the New South Wales Water Commissioner David Harriss told ABC News *'While the Office of Water is not discounting new dams, their real benefits need to be considered...'*

Hunter specific

Analysis by *Institute for Sustainable Futures (ISF)* found that by implementing water conservation and demand management programs, similar to those currently in place in Sydney, all future water needs of the Lower Hunter region can be adequately met for, at least, the next 40 years. This alternative analysis maintains acceptable levels of water security without requiring new dams, while still accounting for the high-end prediction of population growth in the Lower Hunter region.

Analysis by the *Institute for Sustainable Futures (ISF)* also demonstrated that the cost of implementing water conservation and demand management programs necessary to meet the projected increases in demand in the Lower Hunter for the next 40 years would be about \$44 million in net present value (NPV) terms.

The role of demand management in water supply planning is undisputed. Hunter Water's claim that it is serious about demand reduction cannot be substantiated, as only approximately 21% of its Development Expenditure 2009-14 was allocated to demand reduction tools. There now needs to be a focus on improving demand management, rather than dam proposals.

Hunter Water's planning documents before the Tillegra Dam announcement detailed a move away from new dams and towards demand management. Hunter Water's 2003/2006 IWRPS, for example, stated: '*...building a dam at Tillegra would be far less cost effective than many demand management and water conservation initiatives.*' A move towards dams in the Hunter has been politically and financially motivated by the corporation, rather than needs based and in the interests of its ratepayers.

Tillegra Dam would have provided a level of water supply that was far beyond what was necessary for the water needs of the Lower Hunter. The level of water security was at least 50 times that typical of the water supply of other Australian water providers. New technologies in water planning should now, and in the future, preclude the need for dams entirely in the Hunter.

The IPART commissioned 2008 SKM Report demonstrated minimal risks of the Hunter running out of water. Figures from the SKM Report showed the risk of needing to ration water supplies in the Hunter is about 1 in 21 years. This would be minimal level one restrictions (eg. not hosing down driveways). If a new dam were built, the risk of having to implement level one restrictions would be once in every 1,250 years. This would be an absurd level of drought security.

Hunter Water documentation during the Tillegra Dam campaign also demonstrated that the risk of needing Tillegra Dam was 1 in 10 million. This also shows an absurd level of water security.

The Hunter has approximately 170,000 pensioners and superannuates. It was noted during the Tillegra Dam proposal that approximately 13,000 Hunter ratepayers were on partial payments and couldn't afford their water bills. Any dam proposal would be reckless when other cheaper and more efficient water strategies can be implemented.

During the Tillegra Dam campaign Hunter Water's own modelling confirmed that the marginal cost of supplying water for a population increase of 160,000 from current storage is close to zero.

The current Lower Hunter Regional Strategy's key objectives include maintaining and improving biodiversity, protection of natural and rural assets, promoting growth through provision of housing and jobs and providing for growth. Hunter Water's Tillegra Dam proposal contravened at least four of these objectives, namely, maintaining diversity, improving diversity, protection of natural assets and protection of rural assets. This would be so for other dam proposals in the Hunter, and particularly so in the Tillegra precinct.

A new dam in the Hunter would be contrary to the NSW State Plan (PriorityE4) which requires: '*better outcomes for native vegetation, biodiversity, land, rivers and coastal waterways.*' Dams in the Hunter would also be contrary to the Water Management Act 2000, which places priority on the protection or restoration of water dependent ecosystems as well as protecting, preserving, maintaining or enhancing the important river flow dependent ecosystems of the catchment's water sources.

Independent research conducted over a year-long period by Australia's foremost wetlands expert, Professor Richard Kingsford, demonstrated that if Tillegra Dam were to proceed it would have had significant and unacceptable effects on the Hunter Estuary, its Ramsar listed wetland sites and biodiversity, including thousands of migratory shorebirds protected under the EPBC Act. This would also be so if any other dam were to be constructed within the Williams River Valley.

The Tillegra Dam site, where a new Dam is now being mooted by Hunter Water, (Native Dog Creek Dam), would have also had severe environmental impacts with threats to a number of threatened flora and fauna under the EPBC Act. Demand management and other water conservation strategies do not have these impacts.

The Williams River has been described as the healthiest river in the Hunter and possibly NSW. Any dam proposal in the Tillegra precinct, when alternative measures can be implemented, would be a negligent act, both by Hunter Water and the NSW Government.

The National Water Initiative requires water resources to be planned on a catchment-wide basis and for transparent competition and access rules to be put in place for all users. The Hunter catchment already has five large water supply dams operated by two separate NSW Ministerial Corporations with operating rules that do not allow proper efficiency and competition in accordance with the National Water Initiative. This means that the two entities cannot optimise water storage and distribution opportunities across the existing infrastructure. A thorough review of water supply arrangements in the Hunter Region, including operating rules and impediments to competition and efficiency utilising existing infrastructure, should be undertaken.

The Inquiry into Melbourne's Water Supply (June 2009) found that: *'Given the current climate change predictions and that over 80 per cent of Melbourne's water supply is rainfall dependent, the Committee believes that there is an urgent need to diversify the city's water supply rather than invest in the construction of new dams. On this basis alone the Committee does not support the option of supplementing Melbourne's water supply with new dams.'* The Dungog Shire provides around 86% of the Hunter region's water supply. This is an overreliance on rainfall dependent storage systems. The Department of Planning's independent reviewer for the Tillegra Dam proposal, *Centre for International Economics* (CIE), found that Hunter Water needed to diversify its water portfolio strategies.

There is now a large body of evidence from water specialists, scientists, environmentalists, Government Departments and politicians, which demonstrate that a dam in the Hunter is unnecessary and is not needed for drought security. Hunter Water's claim that water storages in the Hunter drop dramatically is a furphy and scaremongering. The storages also fill quickly, however the underlying issue is the corporation's inefficiency with its system's performance and its rainfall reliance storages. Community groups have been requesting an independent analysis of Hunter Water's systems, processes and performance efficiency since June 2010 to Metro Water. This together with a diversification of strategies as suggested by CIE needs to be implemented.

Dams don't provide long-term jobs. Hunter Water's own documentation during the Tillegra Dam proposal demonstrated that only 5 long-term jobs would be an outcome of the project in the Dungog area.

The filling time of dams can also have severe socio-economic impacts on communities. Take the Tillegra Dam proposal, for example. Hunter Water's own

documentation demonstrated that the filling time would be anywhere from 8-18 years. This could have had enormous impacts on local tourism and businesses.

Rainfall in the Hunter precludes the need for dams. *The Hunter, Central and Lower North Coast Regional Climate Change Project* (Goodwin and Blackmore, July, 2009) for the period 2020 – 2080, concluded that the central zone of the Hunter is predicted to experience, on average, drier winters by 12.5% and experience wetter spring conditions by 13%. No significant change is predicted, on average, in summer or autumn rainfall. This finding was contrary to Hunter Water's media pitch which asserted that reductions in Hunter rainfall would necessitate the need for a dam.

The fact that the Hunter Water hasn't experienced water restrictions for more than 25 years further reinforces that fact that the region does not have a problem with water supplies (drought security is at a 30 year high. If Tillegra Dam had been built, the children and grandchildren of current residents would have been highly unlikely to experience even Level One water restrictions during their lifetimes). In fact, there would be very little likelihood of even these mildest of water restrictions being imposed in the Lower Hunter during the lifetime of the dam. Given that similar water restrictions are now permanent 'water wise' rules in most other Australian cities and surveys around the country have shown that low-level water restrictions have very high levels of community support, such levels of supply are clearly unnecessary.

Two formal research polls and numerous informal polls conducted during the Tillegra Dam proposal demonstrated that the Hunter public wanted cheaper and less damaging water solutions. The Morgan research Poll of 2010, for example, showed that 77% wanted cheaper and less damaging alternatives, 74% thought that residents should not have to pay for a dam through increased water rates, and 73% thought that Tillegra Dam was expensive and the money could be spent elsewhere.

Hunter Water breached the National Urban Water Rules during the Tillegra Dam proposal. Hunter Water never consulted with the Hunter public over its willingness to pay for a dam. If the Hunter community does wish to increase its drought security beyond the current level, then this should be the subject of genuine community engagement and there should be a transparent analysis of all available options and their relative costs and benefits.

The call for greater drought security in the Lower Hunter appears to be based principally on Hunter Water's down-rating of their existing supply system availability from a yield of 90 GL/yr to 67.5 GL/yr (Hunter Water 2007). This large reduction, which was made only after Tillegra Dam was announced, was based on no hydrological evidence, and had no apparent oversight by the then NSW Department of Water and Energy. It appears unlikely to be valid. Since the early 1980s Hunter Water's supply system has met a water demand of between 70 GL and 80 GL per year. There have been no significant water restrictions during that time and no water restrictions at all in more than a decade.

Community and environmental groups have requested, since 2011, that Metro Water conduct an independent analysis on Hunter Water's systems to determine the need for augmentation. It is issues such as this, which demonstrate the need for a complete independent analysis of all water supply options and genuine stakeholder consultation when considering future water supplies.

Hunter Water has predicted a sharp increase in water demand despite downward trends in water usage for the last 20 years. In planning documents developed since Tillegra Dam was announced, Hunter Water predicted that water consumption will

rise to 90 GL by 2031 and 110 GL by 2051.

Hunter Water is a public-owned authority that has a water monopoly in the Hunter. Water supply is an essential service and there is an expectation that the water needs of the community will be managed by the corporation in an efficient manner. The public outcry during the Tillegra Dam campaign demonstrates that Hunter Water failed to convince Hunter ratepayers that dams are needed in the region. If stakeholder consultation continues to be poor, there will be a repeat of this public disapproval for any unnecessary, environmentally damaging and costly future water options.

Dams are a significant source of greenhouse gas (GHG), regardless of whether they are used or not. The Tillegra Dam proposal in the Hunter, for example, would have increased the operational GHG intensity of water supply in the Lower Hunter by at least 46%. The potential surface emissions alone from the proposal would have been equivalent to adding an extra 27,000 cars to the Hunter roads (An Assessment of Greenhouse Gas Emissions from the Proposed Tillegra Dam, Institute for Sustainable Futures, University of Technology, Sydney, 2009).

Dams are prone to massive water loss through evaporation. Approximately 30,000 mega litres are lost to evaporation annually from Hunter Water's current reserves. This loss far outweighs the combined savings of all water conservation measures, which is about 4000 mega litres a year. Consumers are constantly asked to use their water wiser, yet water authorities do not maintain their assets to avoid water loss nor do they use their resources to the maximum benefits.

There are other ways for the Lower Hunter to be able to maintain its current safe level of drinking water supply, through tried and tested drinking water saving programs being run successfully by other water authorities. In fact, the Lower Hunter could maintain a similar demand with a high level of population growth by implementing the water conservation and demand management programs currently in place in Sydney.

The National Water Commission's annual report of the performance of Australia's water utilities exposed Hunter water's appalling rate of recycling effluent. Hunter Water has an appalling track record on recycling sewage. It has the fourth lowest rates of effluent recycling amongst the 12 large Australian metropolitan supply authorities. Hunter Water recycled only 7.9% of all sewage collected in 2008-09. This compares very badly to 31% by SA Water in Adelaide, 30% by South East Water and 23% by Melbourne Water. Recycling is cheaper and has a much lower impact on the environment than dams.

The Hunter would be much better served by increasing the use of waste-water to match national standards. It would be cheaper and better for the environment. If Hunter Water matched national best practice, it could boost water security for households and small businesses by taking industrial consumers off the drinking water supply.

Contrary to what Hunter Water has stated, independent water planners have concluded that the Hunter region is in no immediate danger of water shortages and has no need for new dams. With water usage dropping, this means that there is adequate time to develop a full, open and integrated sustainable urban water planning process, which would include genuine community engagement.

At a 2012 Government organised community forum around the NSW State Plan, it was agreed by community groups that it was important to set state wide targets for natural resource management to improve biodiversity and native vegetation, protect sensitive riverine and coastal ecosystems as well as soil condition and socio-economic wellbeing. This cannot occur when large dams are being promoted by Hunter Water.

Conclusion

The terms of reference for this inquiry are narrow and therefore do not allow the benefits of demand management and water conservation strategies over dams/water storages to be investigated.

If the question is just about water storages, then the evidence is overwhelming in terms of the detrimental environmental and socio-economic impacts.

When the Victorian Government embarked on their water inquiry in 2009, it was about Melbourne's Future Water supply and not just about dams. Because of this focus there were many recommendations around water use efficiency and conservation; storm-water and rainwater harvesting, storage and use; and the reuse of treated wastewater. The important finding, however, was that no additional dams be constructed to supplement Melbourne's water supply.

In the Hunter it became apparent during the Tillegra Dam proposal that Hunter Water had not sufficiently assessed the opportunities to optimise the use of existing infrastructure through efficiency measures and demand management. It was also found that Hunter Water's commitment to demand management had been no where near as extensive as utilities in other regions (e.g. Sydney, Melbourne, Brisbane, Gosford, Wyong, etc) and the Lower Hunter had significant scope to make water savings through demand management.

An 18 month rigorous scientific analysis by the Department of Planning demonstrated why Tillegra Dam should not be built. These findings by the Government should also relate to Native Dog Creek Dam, a dam proposal which has never featured in any of Hunter Water's planning documents, and is only 700 metres from the original Tillegra Dam site. Because this dam is virtually on the same site, as Tillegra Dam, it would have the same environmental and socio-economic impacts as the original Tillegra Dam proposal. Any further proposal in the Tillegra precinct would be viewed as a rebadged Tillegra Dam, a broken commitment by the NSW Government and a waste of the taxpayers' money.

Because of the unnecessary, severe socio-economic impacts of the Tillegra Dam proposal on the Dungog community, and because the Department of Planning's 18 month scientific investigation demonstrated that there was no need for Tillegra Dam, the NSW Government should honour its commitment that no new dam will be built in the Tillegra precinct and preclude new dams from the Hunter in favour of more advanced water technologies.

NTDG recommends the following in terms of Hunter regional planning:

1. An independent review of Hunter Water's current systems and processes, including its methodological and costing approaches to water security options;

2. The adoption of standard industry practice with respect to estimating Hunter Water's available water supplies and demand forecasting;
3. An investigation of alternative approaches, including water saving measures, by an independent organisation, to achieve secure, resilient, sustainable and flexible water services;
4. A commitment to least cost planning that evaluates portfolios of supply and demand side options on an equal footing and appropriately values adaptability and flexibility.
5. An examination into the potential for and cost of alternative drought security measures.
6. The consideration of water planning systems which divert from traditional paradigms (eg. Dams), such as that used in the February 2011 Living Victoria Report or the 2010 Metropolitan Water Plan;
7. A full and open integrated water resource planning process to develop a sustainable urban water strategy. This would include ongoing, genuine public engagement (including workshops/meetings prior to, during and at the completion of the process) on all key urban water decisions and consideration of all options. This process should be consistent with the NSW Government's obligations under the National Urban Water Planning Principles. And to assist with this process;

This inquiry should now expand its terms of reference so that the benefits of other options can be considered properly and within the context of proper water planning principles and guidelines.

NTDG would like an opportunity to present evidence/information to the NSW Government Public Hearing relating to this inquiry on 20 August 2012.

Yours sincerely

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