

Supplementary  
Submission  
No 60a

## **INQUIRY INTO WATER AUGMENTATION**

**Organisation:** AWEC

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# Australian Water Exploration Corporation Supplementary Submission

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## About the Australian Water Exploration Corporation (AWEC)

The Australian Water Exploration Corporation (AWEC) is a not-for-profit organisation that researches and advocates new water infrastructure projects that have the potential to better manage Australia's water system. In 2005-07 the Federal Government conducted a number of studies into water infrastructure projects across Australia. AWEC has based a number of its investigations on past government studies. In addition, AWEC has researched potential water projects that have national and state significance. Our team members have visited the USA to closely study water projects in Arizona, California, Colorado and the Mexican border districts, which face similar water and climatic conditions to Australia.

The AWEC has focussed on the following water issues that Australia is facing:

- Climatic characteristics of Australia - the propensity for drought and flood
- Environmental issues of water scarcity - ecosystem damage, salinity and acidity
- Economic and social impacts of water scarcity - especially agriculture and food security

Proposed solutions to these issues:

- Long range water reticulation and enhanced storage;
- Transfer of water from regions of abundance to deficient areas - a practice that dates back thousands of years;

- Global examples that exist that we can learn from - modern techniques have addressed similar issues to those faced in Australia; and
- Historically, there have been several plans proposed to address the issues on Australia's Eastern seaboard - but none have yet been progressed, to the detriment of regional NSW.

To date, AWEC has met with the following stakeholders to discuss a number of water infrastructure projects, and this submission encapsulates some of these discussions:

- Former Prime Minister of Australia, John Howard;
- Member for Lyne, Dr David Gillespie;
- NSW Minister for Water, Niall Blair;
- Federal Minister for Education, Simon Birmingham;
- Parliamentary Secretary for Natural Resources and Western NSW, Rick Colless;
- Senator John Williams;
- Greg Donnelly MP;
- Former CEO of the National Irrigators Council and now Nationals MP, Danny O'Brien;
- Representatives from the Murray Darling Basin Authority;
- Former Director General of the NSW Department of Water Resources and Commissioner on the Murray Darling Basin Commission, Peter Millington;
- Former Member for Murray, Dr Sharman Stone; and
- Former Senator Bill Heffernan.

## **Getting the water from where it falls to where it's needed**

Some parts of the world are currently experiencing severe water shortages. In South Africa, officials are predicting Cape Town will run out of water by April 2018. In India, the town of Nagpur faces a water shortage during summer, and India's thermal power plants, about 90 per cent of which rely on fresh water for cooling, risk facing serious outages because of a shortage of water.

Across the world, water scarcity is a sensitive issue. For Australia, and in particular New South Wales (NSW), it presents an opportunity to implement water management systems that will allow Australia greater capacity to increase its food production – currently Australia produces about 1 per cent of the agricultural product of the world.

Thirty-four countries - nearly 80 percent of them in Africa - don't have enough food for their people because of conflicts, drought and flooding. More than 14 million people in the country are food insecure, while nearly 320,000 children under five years old are severely malnourished. Nearly five million people in Zimbabwe - half of the country's rural population - will need assistance by over the next couple of years as a result of the ongoing drought in southern Africa. Projects that divert water to good agricultural land will equip Australia with the capacity to become a leader in feeding our world's poor and alleviating poverty.

Water scarcity is one of Australia's biggest myths.

The problem isn't a lack of water, rather it is Australia's water supply system. Historical poor planning and management has resulted in a counter-productive situation that turns a sufficient supply of water at its source into scarcity for end-users.

Some 7.5 million people reside in NSW and population projections show that figure will grow to 9.9 million people by 2036. The state has vast farming regions in areas where rain is scarce and urban

sprawl is taking over land that receives a majority of the state's rainfall – some in highly flood prone areas.

Of course many people want to live by the sea and that's not going to change, but a more effective management and use of water resources and infrastructure is critical to the ongoing welfare of the people and the economy of NSW. Investing in vital water infrastructure projects will ensure that NSW makes better use of its floodplains and that sufficient water is diverted to the areas that need it most.

## The East to West Scheme

The basic East to West water transfer concept was first mooted around 1928, by acclaimed engineer Professor John Bradfield, who played an instrumental role in the planning and construction of Sydney Harbour Bridge, and the [Cataract](#) and [Burrinjuck Dams](#).

The Fraser Government authorised commencement of a \$4 million feasibility study of diverting eastern flowing rivers westward in 1983 with both the State and Federal governments acknowledging the necessity of it. However, the following government cancelled the study.

In 2007, then Federal Environment and Water Resources Minister, Malcolm Turnbull, launched an investigation into diverting water from Clarence Dam into south-east Queensland that was met with heavy resistance from NSW farmers and then Clarence Valley Council Mayor, Ian Tiley.

The need for a project of this type remains. Currently, only one per cent of the annual runoff of 5,000,000 ML is being used to satisfy urban, industrial, irrigation, recreation and environmental needs, with the vast majority going out to sea, often flooding low-lying coastal areas in the meantime.

AWEC proposes investigation of a variation of an earlier scheme proposed by the NSW Water Conservation and Irrigation Commission, to harvest fresh water that would otherwise flow into the Pacific Ocean. A version of the Clarence Scheme which keeps unused water in NSW and diverts it to western parts of the state would help regional communities in NSW flourish, would mean that those areas could contribute far more significantly to food production (particularly if they intersected with infrastructure projects such as the Inland Rail project), and would be far more likely to attract political support given that the water remains in – and benefits - this state.

Last year, the Turnbull Government announced a feasibility study into the potential expansion of the Snowy Scheme's pumped hydro storage capability. Under the proposal, up to 2,000 MW of hydro-electric energy would be added to the grid to act as a rapid response back-up during periods of high demand and fill the gaps in energy supply caused by the growth in intermittent renewables and the exit of thermal baseload power. The pumped hydro capability means the water utilised for electricity generation can be recycled to provide supply when it's needed most, with no impact on the Scheme's ability to continue to supply valuable water to irrigators in the food bowl of south-eastern Australia.

The East to West Project could be a 'follow-up' to the Snowy that would store more than six million megalitres of water on the upper Clarence for use in dry times, generate more roughly the same hydro power of the present Snowy Scheme, and divert 1.2 million megalitres of additional water every year to the Murray-Darling Basin.

The East to West Project will benefit Western NSW and would support large-scale infrastructure projects in regional NSW, such as the Inland Rail project, managed by the Australian Rail Track Corporation (ARTC).

In addition, the Project would:

- Increase state productivity;
- Produce clean hydro power;
- Generate productive jobs in regional areas;
- Reduce damage from Clarence flooding;
- Provide better environmental outcomes for both east and west;
- Ensure permanent water supplies to the Darling River; and
- Provide better management of the fishery industry on the Clarence River.

AWEC's earlier estimates were that this project would support some 50,000 permanent jobs and more than \$8 billion annually in economic activity. This figure has likely changed, and a feasibility and economic study into the East to West Project is strongly recommended.

## **NSW State Infrastructure Strategy**

The State Infrastructure Strategy (SIS) is a 20-year infrastructure investment plan, updated every five years, for the NSW Government that assesses infrastructure problems and solutions, and provides recommendations to best grow the State's economy and productivity, and improve living standards for the NSW community. The strategy discusses the critical needs of regional industries and communities by ensuring water security and quality of supply.

Every NSW city, town and suburb needs water infrastructure that meets national health and environmental standards and guarantees a secure water supply. NSW also requires water security for economic growth in productive sectors such as agriculture (\$11 billion in 2011/12) and mining (\$22 billion in 2011/12), which jointly contribute over 7 percent of GDP and provide about 100,000 jobs across the State. The SIS was updated in 2014. The objective is to support the critical needs of regional industries and communities by ensuring water security and quality of supply.

Recommendations for Water Management include:

- Assessing options for critical water infrastructure projects in priority catchments of the Gwydir, Macquarie and Lachlan Rivers, and in the coastal catchment of the Upper Hunter;
- Securing water supplies in high priority regional towns;
- Bringing all regional towns up to water quality and environmental standards;
- Pricing and cost recovery for water security investment (Broken Hill);
- Hawkesbury-Nepean flood mitigation options.

The East to West Project would assist the NSW Government in achieving its objectives laid out in the SIS, specifically by:

- Assessing options for critical water infrastructure projects in priority catchments of the Gwydir,
- Securing water supplies in high priority regional towns; and
- Bringing all regional towns up to water quality and environmental standards.

**Returns on government investment will be highly significant, over an extended period. These returns would be endless, not ten years, not twenty years, not fifty years, but endless.**

## Broader NSW infrastructure requirements

Beyond the economic and community benefits associated with diverting wasted water to areas that it can be better utilised, the implementation of the East to West Project could also equip NSW to better address some of the broader challenges that are facing our state.

This next section discusses social and economic issues that NSW faces and how the East to West Project could help alleviate issues associated with:

- Urban sprawl reducing access to Sydney's food bowls;
- Population growth and spread;
- The cost of flooding to the economy; and
- Equity in social and health outcomes, in terms of Crimes, Drugs and Suicide in regional NSW.

## Population growth in NSW

According to the latest figures from the NSW Department of Planning and Environment the population of Sydney is surging faster than initially predicted. The population is expected to leap by more than 2.1 million people in the next 20 years - about 170,000 more than predicted only two years ago, which will put more pressure on the city's already-stretched housing and transport needs. Planning Minister Rob Stokes described the projected figures as a "symptom of Sydney's success". The NSW population is expected to jump by 2.7 million, increasing to almost 10 million by 2036.

A Deloitte analysis showed Western Sydney's population is predicted to swell to four million by 2050, making it almost the size of Melbourne today. It also reveals Blacktown will add an extra 300,000 people by 2050, almost doubling its population and the south-west region from Bankstown to Camden will swell by 84 per cent to 1.2 million people.

Australia's population is growing faster than other major OECD countries. It is also highest of any country in the region except for Papua New Guinea (2.1 per cent).

New South Wales recorded its highest ever levels of Australia's net overseas migration (NOM), increasing by 31 percent and 23 percent respectively. This growth meant both states surpassed their previous recorded high in 2008-09.

A major contributor to the booming population is immigration. New South Wales recorded its highest ever levels of Australia's net overseas migration (NOM), increasing by 31 percent and 23 percent respectively. But overseas immigration is now also having a growth impact on regional NSW. For many small towns, the overseas-born are the only source of population growth.

### ***Why we should investigate the East to West Project***

- A population boom in NSW supports the case for the government to build on water security schemes to strengthen NSW's water security, and both metropolitan and regional food bowls.
- Strengthening water supplies in regional areas will drive economic and population growth in both the Clarence, and the areas that receive the water.
- Projects such as Snowy Hydro, and Snowy 2.0 are highly beneficial, but can be further leveraged through additional projects throughout the state.

## Population Spread

Moving away from Sydney, regional centres are also seeing an increase in population, as opposed to the decline that has been projected in regional areas in the past. (Regional population decline was even used as a case by the NSW State Government for council amalgamations.)

Research by the Regional Australia Institute, examined the latest 2016 Census data and found 151 regional local government areas were helping to offset declining populations in regional areas by attracting international migrants. Rather than being an unsettling force, international migrants are helping to provide stability to the regional Australian communities they settle in. A considerable number of new arrivals are also younger and have the potential to build families and work in these communities.

Overseas immigration into NSW alone last year exceeded the combined populations of Wagga Wagga and Tamworth, two of the state's largest regional cities. Figures released by the Australian Bureau of Statistics show that Australia's net overseas migration (NOM) for the year ending 30 June 2017 was 245,400, an increase of 27 percent from the previous 12 months.

For many small towns, the overseas-born are the only source of population growth. A majority of these places rely on primary industry for economic viability. Although predominantly rural, these places are not in the most remote parts of Australia.

International migrants are also key contributors to the unskilled workforce, often filling positions that domestic workers are unwilling to take on. For example, abattoirs and poultry plants are important businesses in regional Australia. Many would be unable to operate without international migrants, as many local residents do not consider this kind of work "acceptable employment".

There are now more people living in Australia who were born overseas, as a portion of the population, than at any other time in the last 130 years. This is the highest portion in the world, after Israel. Immigration has contributed substantially to the growth of Australia.

### ***Why we should investigate the East to West Project***

- Regional local government areas are offsetting declining population in their areas by attracting immigrants. Continued access to water will be needed to cater for the continued growth of the economic growth of these areas.
- Regional communities tend to have fewer industries that are more susceptible to water restrictions or shortages, and a project such as the East to West project could underwrite water supplies, and therefore the economies, of many towns west of the Great Dividing Range.

## Urban Sprawl

There are 340,000 potential housing lots left throughout the Greater Sydney basin, which is less than half the number needed to house the city's population over the next two decades. By 2036, Sydney's forecasted 6.42 million population will require 726,000 new dwellings.

What this means is that the trend of spreading towards the city edges, and higher-density living around CBD, transport nodes and centres, will continue.

*The Conversation* recently reported (<https://theconversation.com/urban-sprawl-is-threatening-sydneys-foodbowl-55156>) that if development continues at the rate it is, Sydney will stand to lose more than 90 per cent of its current fresh vegetable production. Total food production could drop by 60 per cent and the city's supply of food from within the basin could drop from 20 percent of total food demand to a mere 6 percent. Even Christmas trees "face the axe", as Sydney's urban sprawl limits supply due to the space required to grow Christmas trees.

Currently, the planning system does not prioritise agriculture as a land use, meaning urban sprawl into potential farmland continues relatively unchecked. Instead, planning tends to focus on whichever use has the greatest economic value. In an overheated housing market such as Sydney's, this tends to mean agricultural land is allowed to be rezoned for houses or other higher-value land uses.

Lower land prices on the city's fringe – in traditional farming areas - allow families to purchase large homes and lots at a lower price than in the city. On the other hand, it means that Sydney's food will have to come from further afield, which will add to transport and therefore food costs. And further, there are media reports that poorly planned housing developments in Western Sydney are contaminating the water supply.

WaterNSW has publicly confirmed that housing developments built too close to canals in Western Sydney has "already resulted in impacts to the water quality".

*"Increasing urbanisation, particularly in western and southwestern Sydney, have resulted in increased pressure on the integrity of critical water supply infrastructure, namely the Warragamba Pipeline and the Upper Canal,"*

(<https://www.dailytelegraph.com.au/news/nsw/poorly-planned-western-sydney-housing-developments-contaminating-water-supply/news-story/85f2f950603c558270ab8965e38eba4f>)

The documents also revealed the Upper Canal needed replacing because of its age. WaterNSW says that housing and land developments need to start considering the impact building is having on water supply.

Aside from issues regarding food and water security, urban sprawl is affecting the health of residents. The Committee of Sydney released findings that people who live in western Sydney are twice as likely to die from cardiovascular diseases like heart failure and stroke, data from HealthStats NSW shows.

Member for Macquarie, Anoulack Chanthivong has also spoke on health issues as a result of over-development in his electorate. Speaking on the Hurlstone Agricultural High School Site Bill 2016, Mr Chanthivong said:

*All speakers on the 2009 bill highlighted this one key, vital aspect—that is, the need for south-west Sydney to have valuable green space, for it to have lungs and for it to have fresh air. If the education Minister has not noticed, south-west Sydney is already drowning in overdevelopment and congestion. Since 2009 the situation has become worse. In terms of housing development, the Macquarie Fields electorate is already doing more than its fair share and carrying a heavier burden than most areas. When I drive around my electorate what was once open space and farmland is now choked, or will be choked, with ever-expanding developments such as Edmondson Park, Willowdale, Emerald Hills, Bardia, Ingleburn Gardens and Denham Court. The need for the green open space of Hurlstone's farm is even more important than before. What is the Minister's response? It is more urban sprawl, more urban splatter, more homes on top of one another, more traffic, more tar and a*



*cement city landscape. The continual destruction and uncontrolled development will only add to congestion and put added stress on services.*

### **Why we should investigate the East to West Project Scheme**

- Sydney's growing population and increased urban sprawl is squeezing out some of Sydney's most productive farmland. A dwindling food bowl will mean greater dependence on more distant food sources, which means that transport costs are higher, and supplies more at risk to factors such as extreme weather events.
- If Sydney cannot produce food in the future it will be natural to rely on food producers in nearby regional NSW, who in turn, rely on water. The Clarence Scheme would make these vast supplies of relatively nearby land, more productive.

## **Cost of flooding to the NSW economy**

The capacity for damage and economic loss as a result of major floods is well understood. The Clarence has experienced four significant floods since 2000. In 2011 the Clarence River peaked at 7.7 metres and more than 10,000 residents were isolated in the Clarence Valley. The January 2013 flood was one of the largest floods on record, peaking at a new record height of 8.1 metres, surpassing the previous record of 7.9 metres set in 1980.

When Queensland is hit by a cyclone, Clarence Valley and surrounding northern NSW are hit with the aftermath downpour that typically travels down the east coast.

Tangible and intangible costs of floods include:

- Damage to residential and commercial property;
- Damage to public infrastructure;
- Damage to crops and livestock;
- Disruptions to transport and essential services networks;
- Disruptions to industrial production and other forms of productivity;
- Emergency responses and clean-up costs;
- Death and injuries;
- Ecological damage;
- Damage to cultural and heritage sites;
- Emotional stress and anxiety;
- Disruptions to daily life; and
- Cultural and heritage losses.

The combined cost of the 2011 NSW and Queensland floods was \$2.5 billion. The clean-up cost of the 2013 flood left the local council with a record clean-up bill. The estimated final figure for the damage was around \$24 million. Flood Mitigation for the Clarence River Basin included the cities of Grafton, Maclean and Yamba. The East to West Project aims to divert water from the Clarence River into the Murray Darling Basin via a tunnel through the Great Dividing Range.

### **Why we should investigate the East to West Project**

- The significant costs of flooding in Clarence Valley over recent years and decades supports the need for the scheme, as it will divert water from one of Australia's largest river systems, ease pressure on the system and potentially slow down the rapid rise of the river during torrential rainfalls.

- Further, the design of this scheme will allow for run-offs to be diverted into nearby dams in the event of extreme downpour to minimise flooding.

## Social issues in regional NSW

### ***Drug use***

The *New Daily* recently reported (<https://thenewdaily.com.au/news/national/2017/08/03/ice-epidemic-regional-australia/>) that children as young as 12 from rural and regional towns are being driven interstate for treatment for ice addiction at a city residential withdrawal unit. The children, referred from “ice hot-spots”, were being treated alongside teenagers and young adults up to 21. Figures show ice-related deaths in regional areas have doubled over seven years. The usage of addictive painkillers oxycodone and fentanyl is also high in rural areas.

The number of deaths relating to methamphetamine (ice) use has doubled in seven years, with nearly half of those in regional Australia. A study by the National Drug and Alcohol Research Centre found 1,649 ice-related deaths between 2009 and 2015 and found 43 percent of those were caused by overdose (source: <http://www.news.com.au/lifestyle/health/health-problems/shock-new-data-shows-the-number-of-aussie-methamphetamine-users-killed-has-doubled-in-six-years/news-story/45e954c668412ab92a8ddf3b74a32b43>) The yearly national death toll doubled over that seven-year period and 41 percent of deaths were in rural and regional areas.

### ***Connection with crime***

High drug usage in regional NSW has resulted in increased crime in these areas. The NSW Government established a rural crime prevention team in an effort to prevent rural crime and protect victims across regional NSW. Deputy Commissioner Gary Worboys said the rural crime prevention team was another resource available to tackle the scourge of illegal drugs and rural crime.

*“Officers work diligently across the State to put the communities they serve first and this additional resource will help them prevent and disrupt those crimes that are having an impact on the everyday lives of residents and businesses,” he said.*

*“Region Enforcement Squads can be deployed across NSW to tackle crimes like mid-level drug supply, which will allow uniformed officers more time to focus on other crimes.”*

### ***Economic security issues***

For many living in rural and remote areas, they experience higher levels of economic insecurity than those who live in cities, who might have greater opportunities to gain employment and provide for themselves and their families. In particular, for those who own, manage and work on farms, their current and future security depends very much on the vagaries of the seasons. Even successful farming yields are dependent on the external market at the time of selling the produce.

A further stressor in many rural communities is the actual or planned change in the economic basis of their community. On the Liverpool plains for example, there is great concern being experienced by many who do not want any expansion of the coal seam gas industry, while at the same time others who are greatly concerned about the decline in small towns and see the new jobs as necessary for the future of the region.

### ***Mental health and suicide***

Further, people living in rural areas experience unique conditions that can increase the risk of ongoing mental health problems and suicide, especially if emerging problems are not recognised and addressed.

The Rural Suicide Prevention Position Paper, released by the Centre for Remote and Rural Mental Health, shows that rural suicide rates are more than 50 percent higher than in the capital cities. The Centre reported the rate of Indigenous suicide from 2012 to 2016 was 23.7 people per 100,000 – more than twice the rate as for non-Indigenous Australians over the same period.

Around 50 percent less money is spent on mental health services in rural and remote Australia, so access to medical help is compromised. Travel times to get help are lengthy and there is still a stigma around mental illness in many smaller communities.

Eight suicides in as many months in Lithgow prompted the local council to ask the State government to help stop the “crisis”. Lithgow Mayor Stephen Lesslie said his region has been rocked by the deaths, which all happened in the space of eight months. The victims were aged between 22 and 35, with all but one of them male.

*“Our community is deeply affected by the rising levels of suicide but unsure of how to best respond.*

*This is a matter for government to show leadership, offer help, resources and funding. There is no headspace service providing early intervention mental health services for young people in Lithgow.*

*Other local services are underfunded and under-resourced. A further concern is that Lithgow Hospital has no dedicated mental health beds.*

*“The downturn in the mining -industry and the uncertain future of these -industries is having a profound effect on this community.”*

Mayor Stephen Lesslie in his August 25 submission to the NSW Parliamentary Inquiry into the prevention of youth suicide.

### **Connection with the East to West Project**

There are a number of interconnected, long-standing and intractable problems that affect people living in regional communities, and obviously no one project is going to solve them. What we do know is that isolation, boredom and a lack of employment are key contributors to these issues, and a project of this scale and in the location of the East West Project, would make strong inroads to help.

It is estimated that the East West scheme would inject \$2 billion into the NSW economy. It would create thousands of regional jobs in construction, and simulate thousands more in operation (in agricultural production and then all of the associated flow on and service industries)

It would also help counteract the effects of severe drought sequences and raise productivity in the Murray Darling Basin and the rest of regional NSW, which will ensure farms in these areas remain viable and strong to continue to feed people and cement NSW as an agricultural powerhouse.

## Recommendations

Poor water supply management is preventing regional NSW from reaching its current and future potential, with thriving townships, jobs and a strong agricultural industry.

The State has vast farming regions in areas where rain is scarce and urban sprawl has taken over land that receives a majority of the state's rainfall.

Effective management and use of water resources and infrastructure is critical to the ongoing welfare of the people and the economy of NSW.

Investing in vital water infrastructure projects will ensure that NSW makes better use of its floodplains and that water is diverted to the areas that need it most.

The challenge is to take a long-term view about economic and social outcomes that rely on water security and supply, considering climate variability and population growth. Major capital investment should focus on high priority catchments, assets, towns and projects.

These five key points highlight the clear and obvious need for mid and long term water scenario planning to create a broad framework, or perspective, of our future water supply needs – yet it appears that, over the last 20 years or so, no such scenario planning has occurred by the NSW government agency responsible for water resources planning.

### **AWEC recommends the Inquiry:**

1. Make a recommendation that the NSW government agency responsible for water resources planning/management immediately commence water resources scenario planning with horizons to 2030 and 2050, to provide a proper and knowledge-based framework upon which water projects can be judged. These studies incorporate an options paper for schemes like the California State Water Project, to capture and relocate water within this state, and be made publically available.
2. Make a recommendation that, concurrent with 1. above, the NSW Government fund a feasibility study into the East to West Project, including its potential economic, social and population impacts, and make that paper publicly available.