Supplementary Submission No 17a

INQUIRY INTO WATER AUGMENTATION

Organisation: Griffith City Council

Date Received: 11 August 2016

In reply quote:

OFFICE OF THE MAYOR

11 August 2016

The Hon Robert Brown MLC
Parliament House
6 Macquarie Street
SYDNEY NSW 2000

Dear Sir,

GRIFFITH CITY COUNCIL SUPPLEMENTARY SUBMISSION – INQUIRY INTO THE AUGMENTATION OF WATER SUPPLY FOR RURAL AND REGIONAL NEW SOUTH WALES

In addition to Council's submission dated 17 June 2016, Griffith City Council would like to make a supplementary and more detailed submission for the inquiry into the Augmentation of Water Supply for Rural and Regional New South Wales.

Yours sincerely,

CR JOHN DAL BROI
EMERITUS MAYOR

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With respect to the implementation of the Basin Plan we support the 1500GL cap on buybacks and promote the investment in infrastructure and on-farm efficiencies. Along with NSW Irrigators' Council we also believe projects that deliver equivalent or better environmental outcomes with less water should not be limited to a 5% improvement in the Sustainable Diversion Limit. These are all mechanisms that focus on efficiency and triple bottom line outcomes. Any increase in the Sustainable Diversion Limit will reflect directly in the productive capacity of irrigated agriculture in this region and NSW.

Yours sincerely

Karen Hutchinson
Policy & Stakeholder Manger

GRIFFITH CITY COUNCIL SUPPLEMENTARY SUBMISSION
INQUIRY INTO THE AUGMENTATION OF WATER SUPPLY FOR RURAL AND REGIONAL NEW SOUTH WALES

This submission is presented as a supplementary submission to the submission by Griffith City Council to this inquiry dated 17 June 2016.

Whilst the comments made in this submission relate in particular to south-western NSW, representations on state-wide issues are included as deemed relevant in response to the specific term of reference.

a) *investigate the requirement for a water equation (demand and supply out to the middle of this century) for rural and regional New South Wales.*

Griffith City Council asserts that a water equation for rural and regional NSW is essential.

Strategic planning assists an organisation, entity or region to determine their preferred future direction and to identify resources and actions required to achieve the preferred outcome. This is the correct proactive approach which avoids being reactive and waiting to see what unfolds.

A demand and supply water equation out to 2050 <u>is essential</u> to underpin strategic planning for rural and regional NSW.

There is a well-documented strategy for growth at a state, regional and local level. This is evidenced by:

- NSW 2021 (NSW Government's 10 year plan to make NSW No. 1) which includes the goal of:

  "Driving economic growth in regional NSW"

- NSW DPI Strategic Plan 2015 – 2019 includes the outcome of:

  "Economic growth by ensuring sustainable use of and access to natural resources"

  and the key measure of:

  "Increase the value of our primary industries within NSW by 30%"

- Regional Development Australia Riverina 2013 – 2016 Regional Plan which states:

  "Agriculture and a large range of related industries will remain the mainstay of our expanding regional economy and every effort should be applied to ensuring its long-term viability and expansion."

  "the Riverina region relies heavily on the agriculture sector for its economic prosperity."

  "Goal 1: To proactively encourage greater economic growth, diversity & industry innovation."

- Draft Riverina Murray Regional Plan, (April 2016) states:

  "The vision for the Riverina-Murray is for a sustainable future, with strong, resilient local communities capable of responding to changing economic, social and environmental circumstances."

  "Important agricultural land will be protected to support continued growth and diversity in the agribusiness sector."

  "Positive regulatory settings and policies that overcome barriers to investment will help the region to grow and prosper."

  "Direction 1.1 Grow the economic potential of the agribusiness sector."

- Murrumbidgee Irrigation Corporate Plan 2016 – 2021 includes the vision of:

  "growing our future together – Customers, Company, Community"

  and the strategic objective of:

  "Effectively plan for growth. We will effectively plan for growth, identify the drivers of customer growth, and ensure that our asset plans, and projects, appropriately consider future growth opportunities."

  Strategic result measures in Murrumbidgee Irrigation's corporate plan include:

  "In 2021, the increasing depth and breadth of our strategic partnerships are contributing to growth in our irrigation district."

- Growing Griffith 2030 is Griffith City Council's Community Strategic Plan; according to Council's website:

  "This important community document is a blueprint for the cooperative management of our city's growth and sustainability."

According to Council's website:

"Griffith City Council is committed to growing economic development opportunities in our region."

Given these stated aspirations for growth at a state, regional and local level, a water equation (demand and supply out to the middle of this century) is essential to underpin this growth.

Agriculture is the dominant industry and economic driver in rural and regional NSW. *Keogh et al*[1] reported from 1961 to 1997 Australian agricultural productivity growth ranged from 1% to 3% per annum and since 1997 productivity growth has stalled. The 1% to 3% productivity growth figures are similar to the Reserve Bank of Australia's target Consumer Price Index. Returns in agriculture have always been challenged as productivity gains are offset by the declining terms of trade (prices increasing at a lower rate than costs).

According to the *Australian Bureau of Statistics Agricultural Census*[2] the value of agriculture in the Murrumbidgee in 2010 was $1,820M. A 30% increase in this figure as targeted by NSW DPI equates to an increase of $546M.

How can the Murrumbidgee achieve the NSW DPI 30% increase in value? The equation for value of agricultural production is:

Yield x Area x Price

Price is subject to global markets and difficult to influence.

Area is constrained by existing land use and government legislation in particular the *Native Vegetation Act, 2003. C*learing approvals and other development approval processes are constrained by onerous use of the precautionary principle by government agencies. Water buy-backs and numerous water policy changes exacerbate the land usage constraints. Access to more land for increased production is unlikely.

The final part of the equation is yield. *Keogh et al,* 2015 noted a stalling of agricultural productivity growth since 1997. **The only way yield can be increased significantly is to increase access to water for productive use.**

Two key users of general security water in the Murrumbidgee are cotton and rice. If each of these industries were to contribute half each of the required $546M to achieve the 30% NSW DPI growth target, the volume of additional water required can be calculated based on current industry water use efficiency. One tonne of rice and one bale of cotton is produced each per megalitre of water used. Current prices are $415/tonne for rice and $500/bale for cotton.

[1] Keogh M, Tomlinson A and Henry M, 2015 *Research Summary: Assessing the Competitiveness of Australian Agriculture RIRDC*

[2] Australian Bureau of Statistics (n.d.), *Value of Agricultural Commodities Produced, Australia 2009-10* Catalogue Nol. 7503.0 Canberra

If rice and cotton equally contribute to the targeted $546M then this equates to just over 650,000 tonnes of rice and nearly 575,000 bales of cotton. Collectively both crops would require just over 1,200GL of additional water to produce these outputs.

Thus, to achieve the growth target of 30% envisaged at a state level a significant amount of additional water is required for productive use. There are few if any alternative ways to achieve such growth. As it stands now water is being diverted for other uses, such as environmental purposes, at the expense of productive use leaving rural and regional communities with a static growth scenario and diminishing taxation revenue to government.

The negative growth scenario risks entrenching **rural communities as second class**, leading to issues with inter-generational equity as the future economic development potential of rural communities is given away to placate invalidated environmental demands.

A water equation (supply and demand) is essential in planning out future resource requirements for social, economic and environmental needs. A debate about the need for more water storages requires robust substantiation of future water needs for productive and environmental purposes. The current system of water management is focussed on allocating existing resources once known, and there is insufficient effort being placed on planning for future growth. Despite repeated rhetoric prioritising growth as a strategy, there is no obvious strategic planning by government who is being reactive not proactive.

As stated by Ross Gittins in the *Sydney Morning Herald* on 3 August, 2016 in his article titled "*China thinks big while Australia waits for luck to strike*":

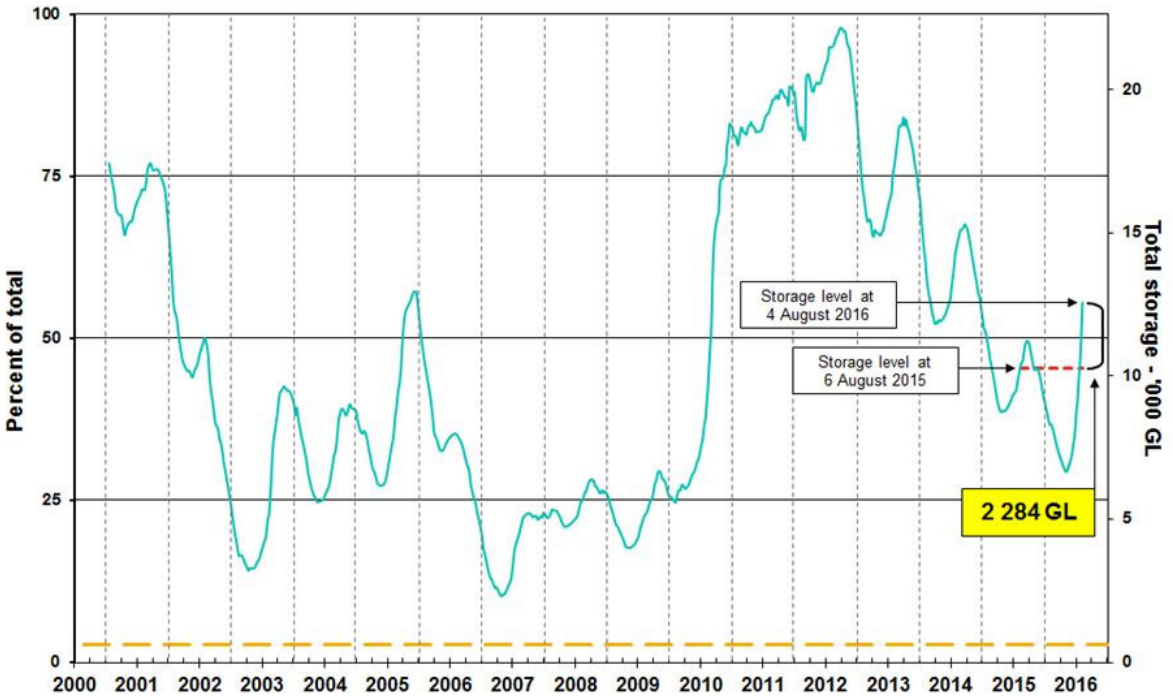
"China is big; we think of ourselves as small. China is confident, impatiently pushing towards a better future; we are fearful waiting for more luck to turn up."

b) examine the suitability of existing New South Wales water storages and any future schemes for augmentation of water supply for New South Wales, including the potential for aquifer recharge.

Griffith City Council asserts the existing NSW water storages are insufficient in capacity.

Water storage levels in the Murray-Darling Basin since 2000 are provided in Graph 1.

Graph 1: Water storages in the Murray-Darling Basin (NSW, Victoria and Queensland)



Source: ABARES 4 August 2016 Weekly Australian Climate, Water and Agricultural Update

Whilst it is recognised the data in Graph 1 is for the entire Basin, rather than NSW, the data indicates the storages over the past 15 years have nearly reached 100% capacity only once in 2012, an exceptionally wet year. The need for air space in storages for flood mitigation purposes is recognised. The data since 2012 indicates water storage levels being progressively drawn down year-on-year. The data in Graph 1 may superficially appear to suggest there is no need for future expansion of water storages capacity. However, this graph does not provide any context with regard to environmental water management such as translucent and transparent flows, drawdown for questionable environmental outcomes, and the management of the Menindee Lake system, nor does it provide any context as to the efficiency of the operation of the existing water storages.

The *Adequacy of Water Storages in NSW, 2013* report included the following recommendations:

"Recommendation 15

That the NSW Government investigate the potential of strategically placed en-route storages to extend water use and provide flexibility in water delivery in some river systems, particularly in the Murray-Darling Basin."

Recommendation 15 highlights the potential for improved water management offered by en-route storages.

"Recommendation 17

That the NSW Government ensure that new storage proposals are comprehensively assessed in terms of cost, benefits, storage efficiency, geological suitability of the site, environmental considerations, community expectations and other factors as appropriate."

Recommendation 17 highlights the need for a rigorous and transparent process for assessing storage proposals. This process does not appear to currently be in place.

The Lake Coolah-Stony Point Water Storage Scheme is an example of an en-route storage which would provide significant opportunity to better manage water en-route in the Murrumbidgee Valley. This storage was considered in detail in the 1970s. There has been no detailed analysis or consideration by the State Government of this storage since the 1980s. Despite sound commercial and engineering fundamentals there does not appear to be the political will to entertain the concept of this storage, let alone undertake a robust analysis of this option.

In Griffith City Council's original submission to this enquiry dated 17 June, 2016 a scheme for the diversion of the Clarence River tributaries was raised as an option for the augmentation of water supply for inland NSW. Council affirms its support of the Clarence River tributary diversion option. This scheme was proposed in the 1980s but there has been no analysis or consideration of this option by the NSW Government since the 1980s.

There are other options for water augmentation which should be considered by the NSW Government including increasing the height of Burrinjuck Dam by up to 40m which would more than triple the capacity of this dam, and double the total water storage capacity of the Murrumbidgee Valley.

Increasing headwater and en-route storages must be considered especially when water is being reallocated to competing and often new uses which have no defined tangible or scientifically credible bases.

Aquifer recharge is an established technology. Only clean filtered water can be used to protect the aquifers against soil pore clogging. Filtering has obvious operating and capital costs.

Of particular note in the Murrumbidgee valley is the substantial recharge of the Lower Murrumbidgee Groundwater Source (LMGS) from unpredictable episodic events, namely floods and extended wet years such as is experienced to date in 2016. Despite the recent millennium (1:1000 year) drought, the LMGS was largely recharged which illustrates the system's capacity to recover from ongoing extractions. In the LMGS basin there is approximately 1,000,000GL of total storage of which 300,000 GL is good quality with the remainder between almost good quality to unusable in a practical sense. Yet the current limit on sustainable yields is just under 300GL or <0.1% of the good quality resource. Assuming conjunctive use with surface waters and a buffer rundown policy

there is a strong argument for at least doubling average annual usage for say 10 years when a review could take place. This is an immediate resource with effectively zero cost to government and an action which would support the 30% DPI growth target and minimise the loss of experienced irrigators chasing future projects in northern Australia.

c) *review the NSW Government's response to the recommendations of the June 2013 report by the Standing Committee on State Development on the adequacy of water storages in New South Wales.*

Griffith City Council asserts the *Adequacy of Water Storages in NSW Report* prepared in 2013 was well prepared with sound recommendations. The report includes 19 recommendations which Griffith City Council supports. In contrast, the NSW Government's response to the recommendations appears inadequate with no clear evidence recommendations have been adopted and implemented.

The only area not sufficiently addressed in this *Adequacy of Water Storage in NSW Report* was water trading. As the State and Federal Government have bought up significant volumes of water entitlements from so-called "willing sellers" and legislated water allocations away into new rule based categories, an artificial hybrid market has been developed which forces up the temporary water trading price. If Governments hold water allocations early in the irrigation season, working on worst case scenario inflows, irrigation allocations are held low and this influences the price of temporary water which impacts on the cost of production for irrigators. If Governments sell their water allocations on the temporary water market after the market has been inflated by the aforementioned practices the proceeds of water sales to the Government act like a *quasi*-tax. High prices for permanent water entitlements and temporary allocations are a deterrent to new enterprises. **Increasing the availability of water by expanding storage capacity would help reduce a key barrier to entry for new and expanding enterprises and encourage industry and productivity growth.**

d) *examine the 50 year flood history in New South Wales, particularly in northern coastal New South Wales, including the financial and human cost.*

Whilst not located in the north coast of NSW, our region has a significant history of floods and flood damage.

In response to floods in recent years Griffith City Council have commissioned a number of flood studies including:

- Griffith Aerodrome Catchment Overland Flow Floodplain Risk Management Study and Plan, prepared by WMA Water, April 2011;
- Griffith Major Overland Flow Floodplain Risk Management Study and Plan for CBD Catchments, prepared by WMA Water, July 2013;

- Lake Wyangan Floodplain Risk Management Study and Plan, prepared by BMT WBM, August 2013; and
- Griffith Main Drain J and Mirrool Creek Floodplain Risk Management Study and Plan, prepared by BMT WBM August, 2015.

According to these studies major floods have occurred in the Mirrool Creek and Murrumbidgee Irrigation Area in 1931, 1939, 1956, 1974, 1989 and 2012. The 1931 and 1939 Mirrool Creek floods led to significant flooding of Yenda and in response opposing cross flow flood gates were built at the junction point where the Mirrool Creek crosses the Murrumbidgee Irrigation main canal 8km east of Yenda. This structure is known as the East Mirrool Regulator. These cross flow flood gates added capacity to an under canal syphon and successfully mitigated flood events in 1956, 1957, 1974 and 1989.

The privatisation of Murrumbidgee Irrigation in the 1990s and other events led to a decommissioning of the cross flow flood gates. As a result, in March 2012 a large Mirrool Creek flood event was not able to be mitigated by the reduced capacity of the under canal syphon. Subsequently overtopping of the northern branch canal occurred and the worst known flood event in Yenda occurred which severely impacted 450 homes, 12 businesses, four public and government buildings and more than 100 farms. Anecdotal calculations put the private and public sector losses at $90M.

It is now more than four years since the 2012 flood, and little has occurred with regards to flood mitigation actions. Having experienced the wettest June on record and with a forecast of continued above average rainfall for spring 2016 the residents of Yenda are understandably anxious about the potential for flooding to occur again.

The human cost of the 2012 flood is difficult to quantify. The residents of Yenda are still upset at the way the 2012 flood was managed. According to a submission from the Yenda Progress Association dated 6 July, 2015 to Griffith City Council:

"The March 2012 Yenda flood was more than financially devastating for Yenda residents, it was emotionally traumatic. Residents left for work on Monday morning 5th March 2012 not expecting to be losing almost everything they owned of sentimental value. In particular clothing, vehicles, photos, keepsakes, children's school projects, toys and pets etc.

The flood was traumatic for many Yenda residents because of the way they were given fifteen minutes notice and ordered to leave their homes. Some Yenda residents coming from work in Griffith were not allowed to enter the town after the order to evacuate was given by SES Wollongong Commander".

"Consequently, not having enough time to evacuate their homes properly many residents were not able to lift furniture, pack clothing, secure photos, items of sentimental value or collect pets. Forced to leave by …….. SES volunteers and backed up by Police, Yenda residents left their homes in a state of disbelief. They couldn't see any flood water. It didn't enter the town for another 24 hours."

It was another eight days after flood water entered Yenda before residents were allowed to return. After the floods many Yenda residents reported issues with insurance companies with regard to flood claims. Premiums for home insurance have incurred up to a fivefold increase for flood cover with home and contents insurance increasing from $1,500 per home to $7,000 for full flood cover. As a consequence many Yenda residents are no longer insured for flood.

In contrast to what occurred in Yenda, in March 2012 the SES also ordered the evacuation of Hay which the Council did not support and Council's confidence in the town levee to withstand the flood was subsequently affirmed.

The July 2013 flood study found total tangible residential flood damages in Griffith for a 1% AEP (annual exceedance probability or 1 in 100 year event) to be $1.9M averaging $26,950 per property with 70 properties affected and 23 flooded above floor level. The study also found potential commercial and industrial damages for a 1% AEP to be $15.0M with the average damages per property of $120,000 with 125 properties affected and 100 flooded above floor level.

According to the August 2015 Flood Study the predicted flood damages for existing conditions with a 1% AEP are a total of $28.2M with nearly $26M of this impact being at Yenda. Predicted flood damages for a 0.5% AEP are $44.7M and an extreme flood are $115.2M which puts into perspective the 2012 flood.

A good summary of flood history in the Murrumbidgee Valley was provided in the submission by Ron Pike to the NSW Standing Committee on State Development inquiry regarding the adequacy of water storages in NSW. In his submission Mr Pike provides a 170 year history of flood for the Murrumbidgee River at Wagga Wagga. From his analysis Mr Pike concluded:

"A: Droughts of up to three and 16 years are a regular recurring feature of the Lower Murray-Darling Basin and in fact for all of southern Australia. From the recorded data we know they last an average of 8.2 years and recur every 10 to 13 years.

B: When droughts come to an end we usually have several years of above average rainfall and runoff and it is not uncommon to have several floods in a short period, with these wetter periods averaging 6.4 years in each cycle.

C: The building of Burrinjuck Dam has had no adverse effect on the recurrence of floods downstream, in the Murrumbidgee River in fact they have increased, contrary to what is claimed by the MDBA.

The flood history of the Murrumbidgee River is closely mirrored in the Lachlan and Murray Rivers.

It needs to be appreciated that during higher rainfall periods (La Nina) even in years when there are no floods there is above average run-off and dams replenish following most irrigation seasons."

Based on Mr Pike's analysis the frequency of droughts followed by above average rainfall indicates the need to have significant storage capacity to carry water forward from wet periods to dry periods to sustain both the environment and our regional economies through the productive use of water. This was the vision of our forefathers and illustrates the present disconnect between rural communities and urban policy-makers.

The cost of flooding to society is an ongoing problem that requires far greater attention than it is currently given. According to a submission by the Floodplain Management Association to the Productivity Commission Inquiry into natural disaster funding arrangements dated 13 June, 2014:

"Flooding is the most costly and yet most manageable of natural disasters in Australia. Damage and disruption caused by flooding is estimated to cost Australia around $550M a year. Climate change trends towards an increase in storms severity with more intense rainfall and higher ocean levels are likely to increase the prevalence and severity of flooding and associated damage."

Floodplain Management Australia highlighted three key issues in their submission being:

"1. Implementation of floodplain management plans and resilience initiatives can be stymied by piecemeal, variable and insufficient funding.

2. The NPA and NDRRA can be rigid and administratively burdensome without improving accountability or certainty of funding.

3. Role for all three levels of government should be maintained."

With regard to Issue 1 raised above, the Yenda flood occurred in March 2012. Detailed studies have been carried out by Council and yet, more than four years after the flood, on-ground works undertaken have been minimal.

With regard to Issue 2 above, the NPA is the National Partnership Agreement on natural disaster resilience and the NDRRA are the Natural Disaster Relief and Recovery Arrangements which is a joint funding initiative of Commonwealth and State Governments.

e) *examine technologies available to mitigate flood damage, including diversion systems, and the scope of infrastructure needed to support water augmentation, by diversion, for rural and regional New South Wales.*

According to the submission by the Floodplain Management Association to the Productivity Commission Inquiry into natural disaster funding arrangements dated 13 June, 2014:

"Current disaster funding arrangements are focussed on response and recovery to the detriment of management and mitigation. In its report Building our Nation's Resilience to Natural Disasters Deloitte Access Economics (the Deloitte report) found that each year an estimated $560M is spent on post disaster relief and recovery by the Commonwealth Government compared with an estimated consistent annual expenditure of $50M on pre disaster resilience: a ratio of more than $10 post disaster for every $1 spent pre-disaster. This is without accounting for the recovery and reconstruction costs borne by state and local Governments."

This skewed ratio of recovery to mitigation is a strong call for action. The Griffith City Council commissioned floodplain risk management studies and plans, referenced in the response to Term of Reference (d) in this submission, have recommended a number of flood mitigation strategies. Council and the community are rightly concerned and, as highlighted by the Floodplain Management Association; the processes for accessing funds for flood mitigation are rigid and administratively burdensome.

The August 2015 Griffith Main Drain J and Mirrool Creek Floodplain Risk Management Study and Plan recommended the following flood mitigation works:

▪ Yoogali structural works	$500,000.00
▪ Yenda structural works	11,300,000.00
▪ Hanwood structural works	250,000.00
▪ Main Drain J works	250,000.00
▪ Flood warning and emergency response	50,000.00
Total	**$12,350,000.00**

On 8 March, 2016 Griffith City Council resolved their flood mitigation priorities for application to the Office of Environment and Heritage (OEH) for funding. The priority list and funding subsequently applied for is as follows:

1.	Mirrool Creek Flood Warning System and Emergency Breaching Protocol	$190,416.00
2.	Yoogali McCormack Road Levee and DC605J Culvert Upgrade	120,000.00
3.	Yenda EMR Lawson Syphon-Investigation and Detailed Design	600,000.00
4.	Hanwood Stormwater Levee and Pump	120,000.00
	Total	**$1,030,416.00**

Given the estimated impact of the March 2012 floods on Yenda alone of $90M an investment of less than $12.5M in flood mitigation is a sound investment.

Flood mitigation options were assessed in the 2011 Aerodrome, 2013 CBD and 2013 Lake Wyangan flood reports. A series of low cost planning improvements and feasibility assessment works are proposed to mitigate flood damage as follows:

- Aerodrome - $65K for planning and drainage strategy;
- CBD - improved drainage and removal of impediments; and
- Lake Wyangan issues to be managed via planning controls.

f) examine social, economic and environmental aspects of water management practices in New South Wales and international jurisdictions, including the following case studies:

i. Broken Hill town water supply/Menindee Lakes system

ii. South Western NSW water management practices

iii. North Western NSW water management practices

Griffith City Council asserts that water management practices in NSW are constraining rural and regional NSW.

The key legislative drivers of water management practices in NSW are the Federal *Water Act, 2007*, *Water Sharing Plans* and the *Water Management Act, 2000*.

There is a lack of objective data addressing the social, economic and environmental impacts of environmental water management in NSW and the Murray-Darling Basin Plan. This is evidenced by the recommendations of State and Federal Senate Inquiry Committee reports described as follows:

The *Adequacy of Water Storages in NSW* report dated 2013 includes the following recommendations:

"Recommendation 7

That the NSW Government review the environmental flow allocations for all valleys in New South Wales and make recommendations to the Commonwealth Government for it to review the environmental flow allocations for New South Wales valleys in relation to the Murray-Darling Basin Plan.

Recommendation 8

That the NSW Government amend the principles of the Water Management Act 2000 to ensure that the commercial water supply for towns and utilities and high security needs in regulated rivers are prioritised above environmental needs."

These two recommendations recognised issues with environmental management in NSW in 2013, and yet there has been no tangible action. The *NSW Water Sharing Plans* gazetted in 2004 were to be reviewed after 10 years. This is still yet to occur. Environmental water management provisioned for in the *Water Sharing Plans,* such as translucent and transparent flows, has frequently been questioned by rural and regional communities particularly in light of the *Murray-Darling Basin Plan* and yet no tangible action has been taken.

Local member, Mr Adrian Piccoli was quoted in the *Area News* on 1 July, 2016 with regards to environmental flow rules saying:

"Legal advice to the NSW government has confirmed that the rules cannot be changed by the NSW minister. Since the Commonwealth took over water legislation with the Water Act only they can change these stupid rules and they must do it immediately."

The community's frustration with these rules and lack of action was summed up by Griffith Mayor,
Mr John Dal Broi in the same Area News article who said:

"the loss of production can only be described as totally irresponsible by bureaucrats with absolutely no understanding of the financial implications to individual farmers and the communities that service the irrigation industry."

In south-western NSW translucent and transparent flows enshrined in the *Water Sharing Plans* are examples of failed water management practices.

Translucent and transparent flows are based on assumptions of pre European natural flows the premise of which is technically flawed. The purpose of these flows is to mimic natural flow variability. In practice opportunities for water availability to be enhanced for the benefit of all are being wasted.

According to a Murray Darling Basin Commission 2003[3] fact sheet runoff in the Murray-Darling Basin for both current and natural conditions is/was 23,850GL. Zhang et al 2001[4] stated:

"It is now well established that forested catchments have higher evapotranspiration than grassed catchments"

[3] Table 3 Page 5, Murray-Darling Basin Water Resources Fact Sheet, November 2003

[4] Zhang, L, Dawes, WR and Walker, GR (2001). Responses of mean annual evapotranspiration to vegetation changes at catchment scale, Water Resources Research 37 (3): 701-708

and

"a clear conclusion was that a reduction in forest cover increases water yield by decreasing evapotranspiration."

Significant areas of the Murray-Darling Basin were cleared as they were settled, which has led to increased catchment runoff. The assumption that pre-European natural condition runoff is the same as current condition is technically incorrect, therefore assumptions made about translucent and transparent flows based on current conditions in the Murray-Darling will subsequently be incorrect.

At a Federal level with regards to the Murray-Darling Basin Plan, the recommendations in the Select Committee on the Murray-Darling Plan, Refreshing the Plan dated March 2016 included:

"the Committee was concerned to hear that several elements of the Plan, and in some instances the way the Plan has been implemented, were having negative impacts on economies and communities in the basin. These issues were both broad and state-based,"

and

"The Committee considers the implementation of the Plan requires greater effort to minimise its negative impacts."

Recommendation 2 within the 2016 Select Committee Report was:

"The Committee recommends that the Murray-Darling Basin Authority, as part of its ongoing social and economic work, undertake and publish a thorough assessment of the estimated and actual social and economic impacts of the implementation of the Plan."

The use of "**thorough assessment**" in this recommendation highlights there is a lack of quality information on the social and economic impacts of the Murray-Darling Basin Plan to date. This was affirmed by background work undertaken in preparing this submission. This is in spite of the significant investment ($12B) being made by the Federal Government in the Plan.

Any sound investment should include checks and balances to ensure the investment is achieving objectives and not creating intolerable impacts (side effects).

In the case of the *Murray-Darling Basin Plan* it appears the checks and balances for a $12B investment have not been given due regard.

The Federal Government used the External Affairs Power to override the states in the *Water Act, 2007*. This External Affairs Power was used to enforce the Ramsar listing of the Coorong which is an International Agreement Australia is subject to. In so doing the environment was given priority over social and economic considerations.

The *Water Act, 2007* refers to eight international agreements:

"and any other international convention to which Australia is a party."

These international agreements override our own constitution and expose our nation to current and future international conventions effectively removing our sovereign right to manage our own natural resources. The Federal Government is hiding behind international agreements to save perceived environmental issues at the expense of our rural and regional communities.

The issues relating to environmental water management are known at a State and Federal level. The blame shifting between levels of government, lack of accountability and lack of progress in resolving the issues is constraining rural communities and leading irrigators' decisions to become increasingly undermined by bureaucratic-driven uncertainty and risk.

A yet to be released report by the Murray-Darling Basin Authority on the Northern Basin was reported on in the *Weekly Times* on 3 August, 2016. **Findings include job losses of 10% to 35% in rural communities who rely on irrigation**. **Such bureaucratic-driven job losses would not be tolerated in any metropolitan area or marginal seat.**

It is important to debunk the notion that providing more water for productive use is propping up greedy irrigators as is often stated or inferred. The infrastructure to manage and supply additional water for productive use is already in place. South western NSW has the industry and capacity to use additional water, particularly for summer crops such as cotton and rice which are the key annual crops grown in the Murrumbidgee Valley.

The region also produces a range of permanent crops including citrus, wine grapes and tree nuts. The water demands for permanent crops are inelastic and tend to be supplied by high security entitlements. Crops produced with general security entitlements of which the allocations can vary widely, tend to be annual crops which have a more elastic water demand *albeit* requiring reasonable notice in order to prepare land and plant these crops.

ABARES, 2016[5] reported farm business profits for rice farms in the Riverina to be:

	2012/13	**2013/14**	**2014/15**
Total Cash Receipts	$731,822	$834,308	$779,020
Farm Business Profits	$4,117	$88,453	$37,191
Rate of Return	1.9%	2.9%	1.9%

Source: ABARES 2016[2]

[5] ABARES 2016, Agriculture, Fisheries and Forestry in the Riverina Region of New South Wales, 2016. About my region, Canberra, June CCBY3.0

Farm business profit most likely excludes provision for fair owner's salary and capital renewal. The rate of return excludes capital appreciation. The modest profits and return for rice producers are comparable or less than bank term deposit interest rates and do not reflect the level of risk rice producers face in terms of season, water allocations and markets. Profit compared to income is very modest.

If additional water was made available to rice farms production would increase as would total cash receipts. The difference between total cash receipts and farm business profits in the table above includes all costs of operating the business such as farm inputs, labour, rates and interest costs. The majority of these expenses are incurred locally driving the regional economy. An increase in rice production at a farm gate level creates significant increases in flow-on expenditure through the region via purchasing inputs, labour, machinery repairs, etc. The economy multiplier used by ABS, 2011[6] is 2.1788.

Australian rice growers are world leaders in water use efficiency and use 50% less water to produce 1kg of rice than the world average. The rice industry is now producing one tonne of rice for each megalitre of water used. The current rice price is $415/tonne. **The additional farm gate value generated by a single megalitre of water is therefore in excess of $400 with the regional benefit in excess of $900.**

The social and economic benefits of making more water available for productive use can be readily calculated. **Given modest profit levels for rice growers, the myth that the additional water will simply prop up profits for greedy irrigators should be disregarded.**

The Menindee Lakes are managed by the Murray-Darling Basin Authority or NSW Government subject to the volume of water in the Lake system. The failure of the Broken Hill town water supply and environmental damage that has occurred in the Menindee Lakes' system in the past two years is an example of poor water management practices. The Menindee Lakes' capacity is 1,750GL. In 2012 the Menindee Lakes were filled and a total of 6,500GL of water flowed into/through them. The drainage of the Menindee Lakes by the Murray-Darling Basin Authority in order to sustain the artificial environment that is the Lower Lakes and Coorong is a prime example of the failure of water management practices. The solution announced for Broken Hill's town water supply is a $500M pipeline from Wentworth, which is significant and ill-placed expenditure when improved management of environmental water by the State and Federal Governments would negate the need for such a system.

In 2007 when the *Water Act* was gazetted we were in the midst of the millennium drought recognised as a 1 in 1,000 year event. The experts at the time were stating that this was a permanent shift in our weather.

[6] Australian Bureau of Statistics (n.d.), *Value of Agricultural Commodities Produced, Australia 2009-10* Catalogue Nol. 7503.0 Canberra

In 2005 in relation to the Warragamba Catchment the then Climate Commissioner, Professor Tim Flannery, said:

"so when the models start confirming what you're observing on the ground, then there is some fairly strong basis for believing that we're understanding what's causing these weather shifts and these rainfall declines, and they do seem to be of a permanent nature."

On the ABC program, *Landline*, in 2007 Professor Flannery said:

"we're already seeing the initial impacts and they include a decline in the winter rainfall zone across southern Australia, which is clearly an impact of climate change, but also a decrease in runoff."

"So even the rain that falls isn't actually going to fill our dams and our river systems, and that's a real worry for the people in the bush. If that trend continues then I think we are going to have serious problems, particularly for irrigation."

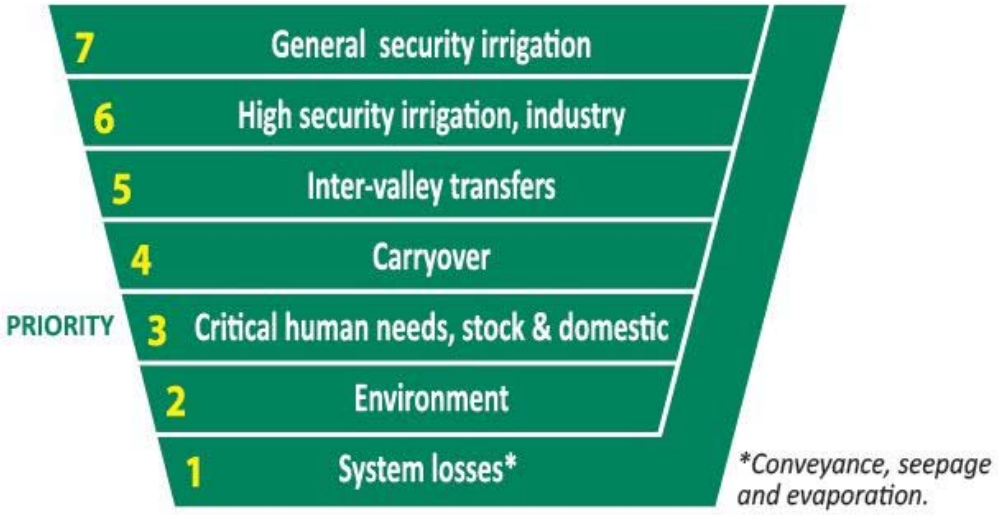
These statements have subsequently been proven incorrect by evidence like the following:

- The rainfall that has fallen since 2010 saw the Murrumbidgee River flood in 2010 and 2012;
- Extreme weather events in March 2012 resulted in the Yenda flood;
- The highest winter rainfall for Griffith was recorded in 2015;
- The wettest June on record for Griffith was recorded in 2016;
- The third wettest June on record for NSW was recorded in 2016; and
- The wettest July in southern NSW in 2016 for over 20 years.

The 2007 election was fought largely around the issues relating to climate and the environment. The Water Act was gazetted by the then government to try and gain political traction in marginal seats in South Australia. Weather events from 2010 onwards have proved that a permanent shift towards dryness across our region and catchments has not occurred. **A revisiting of the *Murray-Darling Basin Plan,* the *Water Act, 2007* and Water Sharing Plan is warranted.**

The current system of sharing water in NSW puts all of the allocation risk on general security irrigators alone. The following diagram shows the priority of water access licences in NSW.

Figure 1: Priority of Allocations



Prioritising of the environment over critical human needs fails any test of reasonableness. Recommendation 8 of the *Adequacy of Water Storages in NSW* recognises this fact. Whilst the listing of system losses as the highest priority may appear at face value reasonable, how when and where such losses are measured lacks transparency and accountability.

The current water allocation system is based on allocating water resources in order of priority. The first six categories in Figure 1 almost invariably receive 95% to 100% of planned allocations

However General Security irrigators as Priority No. 7 are provided the scraps – they cannot rely on planned allocations and almost invariably experience major shortfalls.

Environmental water can be carried over and excess water can be sold to cover costs. The priority of these categories over general security entitlements is favouring trade by the State Government over allocation for productive use to irrigators. In times of plenty there is sufficient water for all; however the reliability of general security irrigation allocations has been significantly eroded over the past 30 years. **During this time however there has been no change to water storage capacity.** The reduced general security allocation reliability has arisen from the reallocation of water for non-productive purposes.

In NSW the water year is based on a financial year commencing 1 July. General security irrigation allocations are announced on 1 July and revised on the first and fifteenth of each month. In southern NSW two of the largest general security irrigation water users are the cotton and rice industries. These crops are planted in September/October and need to be planned months in advance. Irrigators rely on early irrigation allocations to determine crop areas. The millennium drought resulted in significant changes in the way irrigation allocations are managed with a worst case scenario inflow approach adopted by

the State Government. This is evidenced by the timing of irrigation allocations announcements, which, despite the above average rainfall, were delayed as shown in the following table:

	Murrumbidgee General Security Allocation at			
Year	1 July	15 September	1 December	15 December
2010/11	0	45%	59%	100%
2011/12	44%	59%	100%	100%
2012/13	64%	69%	100%	100%

In these three years 100% allocation was not announced until either the 1 or 15 December, which is one to two months after the summer crop planting window closes. This is too late to facilitate increased production. On 1 July, 2016 the general security irrigation allocation in the Murrumbidgee was 20%. This was very low despite June 2016 being the third wettest month on record in NSW. As at August 16 general security allocations are only 44% and yet Blowering Dam is 73% full and Burrinjuck Dam is 81% full. These two dams have only 640GL of available capacity until full and yet general security irrigators are still less than 50%. Current and recent general security allocations highlight the disconnect between water management authorities and best-practice irrigation.

Irrigation allocations, even in wet years, are being allocated at times which do not recognise the need for timeliness of decision-making for water users.

Given the extensive and significant issues relating to water management practices in NSW, Griffith City Council request an independent international review of the Murray-Darling Basin Plan.

g) *the efficiency and sustainability of environmental water being managed by different State and Federal Government departments and agencies.*

Griffith City Council asserts the efficiency and sustainability of environmental water management by State and Federal Government is highly questionable as evidenced by ongoing river bank erosion, black water events, native fish kills, blue green algae events, the proliferation of carp and mosquito fish, the management of the Menindee Lakes and continued environmental degradation of the Lower Lakes and Coorong in South Australia.

NSW Water Management

The NSW OEH according to its website, currently manages 743,259ML of water entitlements making it the largest water holder in NSW. **Murrumbidgee Irrigation and Murray Irrigation hold more entitlements, but do so on behalf of shareholders and are in the business of supply of water rather than management of water.**

The NSW Government has a number of conflicting roles in respect of water management including:

- Ownership of the largest volume of water in NSW;
- In charge of water rules and regulations;
- Having a legislative monopoly on water delivery systems and infrastructure; and
- Assessing its own performance with regards to water management in a system which lacks transparency and accountability.

The management of the Menindee Lakes by the Murray-Darling Basin Authority and the NSW Government has resulted in Broken Hill's town water supply drying up, and the instigation of a $500M solution. The Lakes were full in 2012 and nearly empty within two years. Nearly four times the capacity of the Menindee Lakes flowed into or through the system over a three month period in 2012. **The result has been a triple bottom line failure. This is incompetence, but who has been held accountable?**

Within NSW there are numerous inadequacies in the way environmental water is managed. There are reportedly nearly as many bureaucrats involved in water management in NSW as there are irrigators, and a growing disconnect between those responsible for managing environmental water and the rural communities which are impacted by these environmental flows. **There is evidence of the OEH flooding low lying areas which have not held water since the 1960s and using previously decommissioned irrigation channels with major leakage issues.**

Across the Murrumbidgee Valley there are a significant number of young red gum trees which germinated after the floods and above average rain of 2010 and 2012. These trees will benefit from the wettest June on record experienced across much of the Riverina in 2016. In the natural sequence of events a significant number of these young trees will die out in the next dry period. If instead these young trees are propped up by environmental water their future demand for water as they mature will increase exponentially creating more pressure on environmental water management.

Similarly significant numbers of trees across the Riverina plains (such as along the Murrumbidgee River established in the above average rainfall periods in the 1950s and 1970s) are now considered part of the "natural" environment which must be maintained at the expense of productive water use.

The technically flawed baseline data used to identify the "natural" versus "created" environment is questionable. Our rural communities which rely heavily on the river systems have a vested interest in their long term sustainability. Phrases like "dying rivers" quoted in the press are emotive and not representative of the resilience of our river systems and the attitude of our communities.

Issues with water governance in the NSW Government are highlighted by the following from *Draft Riverina Murray Regional Plan, 2016* which states:

"Water for the Future

This is a long term (10-year) initiative to better balance the water needs of communities, farmers and the environment. As part of this initiative, $3.1 billion will be invested in the Restoring the Balance in the Murray-Darling Basin Program to purchase water entitlements from irrigators looking to sell. This investment aims to address excessive consumptive use and declining river health as urgent priorities."

The *Draft Regional Plan* was released in April 2016 by NSW Planning and Environment. The comments made in relation to purchasing water entitlements conflicts with previous commitments made in relation to restricting water buy-backs. A statement made by the then Minister for Primary Industries, Ms Katrina Hodgkinson, on 15 January, 2013 included:

"Effective from today, the NSW Government will restrict the amount of water which the Commonwealth Government can purchase for the environment as part of its Murray-Darling Basin Plan."

"The Commonwealth Government has ignored the very real concerns of NSW Basin communities about the potential size and pace of an environmental water buyback program, so the NSW Government has been forced to act.

From today, further water purchases for the environment will be restricted to three per cent per valley per decade, a more sustainable rate of purchase which will provide much needed breathing space and time for rural communities to adjust."

"The NSW Government will not stand by and allow the Commonwealth to take the lazy option which removes water from productive purposes in NSW."

The statements made in the *Draft Regional Plan* in April 2016 directly conflict with the position the NSW Government took in January 2013. Disconnection, communication and governance within and between State government agencies on such a critical issue is a serious concern for rural and regional communities.

There are ongoing issues with the NSW Water Sharing Plans which the NSW Government continues to refuse to acknowledge and/or address. The voluntary contributions made by irrigators in the late 1990s and 2000s towards the environment effectively reduced irrigation allocations for high security users by 5% and general security irrigators by 15%.

These voluntary contributions known as "rules based environmental water", were supposed to be reviewed after one and five years. These reviews did not occur, instead the voluntary contributions were enshrined in Water Sharing Plans which were meant to be reviewed after 10 years and are still yet to occur.

The transparency and accountability which OEH are managing rules based and other environmental water is inadequate and leaving regional communities with

grave concerns whilst also undermining regional productivity and in so doing undermining tax revenue for State Government.

The Lower Lakes and Coorong

The current environmental water management regime by State and Federal Government is based on flawed assumptions including the need for high volumes of water to sustain the Lower Lakes in South Australia. The flawed assumption that high volumes of water are required to sustain the Lower Lakes was perpetuated by the millennium drought, and not adequately reviewed since 2010 when the drought broke with a series of floods from 2010 to 2012.

The drainage systems built in south-east South Australia, construction of the barrages in the Lower Lakes in the 1940s and subsequent operation of the Lower Lakes to be 0.75m AHD has created an artificial environment at the end of the Murray River.

According to *Radok & Stefanson*, 1975[7]:

"During the 1914 drought, at Morgan, 320km. from the sea, water contained 804 p.p.m. salt, while at Murray Bridge, 110km. from the river mouth, it contained 6992 p.p.m.; this salt appears to have been largely originated directly from the sea. In 1940, the last of the five barrages across the channels between Lake Alexandrina and the Murray mouth was completed. During the 1945 drought, when no fresh water passed over the barrages for 12 months, corresponding salt contents were 782 and 833 p.p.m, respectively, and the cost of the barrages was fully justified."

During the extreme drought of 1914 sea water moved a significant distance inland up the Murray River.

According to www.usedrains.org.au/history.htm:

"The Upper South East is situated approximately 300km south-east of Adelaide, measures about 100km from south to north, and extends about 100km inland from the coast in the west. The region is divided into a series of flats separated by well-defined ranges that run parallel to the coast, but which are less well-defined in the north. The ranges were formed several thousand years ago when the sea retreated westwards to the current coast-line. The region is situated over an extensive shallow, unconfined groundwater system (typically about 20m to 30m thick) that has its eastern boundary across the state border in Victoria.

The South East of South Australia has experienced large-scale flooding and dryland salinity for thousands of years, and has been described as once being the "Kakadu of the South until a huge network of drains was carved through the region to improve arability of the land and ease of movement" (ABC (2006)). Descriptions of the region in the early 1800s (reported in Carter et al (1989) and England R (1993)) indicate that up to half of the land was seasonally flooded, with many areas being permanently inundated. Prior to European settlement, the South East was dominated by wetlands, of which only about 8% remain (Gell et al (2002)).

[7] Radock, R, Stefanson, R, *Sea Water Exclusion from Australia's River Murray, 1975*

Groundwater in the upper, unconfined aquifer flows slowly in a general westerly direction to the coast, whereas surface water is directed north-westwards along the eastern sides of the ranges. The eastern sides of the ranges are where watertables are closest to, or above, the land surface, and where soils are generally less permeable. As the surface water flows slowly to its natural discharge point into the Coorong at Salt Creek, salts became concentrated as water is evaporated."

The "natural discharge point" for the surface waters of south east of South Australia was the Coorong at Salt Creek.

According to *Wear et al (2006)*[8]:

"Prior to the 1960s, much of the south east of South Australia was subject to inundation by water during winter, impacting on the productivity of agricultural land and transport through the region. Consequently, over a long period an extensive artificial drainage system was constructed. This system carries most of the excess surface water to the ocean, discharging at various locations along the coast."

and

"seagrasses to the discharge point of drains in the south east appear to be impacted, as demonstrated by reduced seagrass leaf densities and leaves of reduced stature. The level of impact tends to reflect the volume of water discharged from the drains and the size of each drain and its associated subsidiaries."

According to *Reeves et al*, 2014:

"The debate over the natural conditions of the Coorong and Lower Lakes system has fed into federal politics with regard to the provision of water into the Murray-Darling River as environmental flow."

and

"Extreme hypersalinity caused ecosystem change in both lagoons of the Coorong and inspired statements that the Coorong was in crisis (Kingsford et al 2011)."

"Prior to 1955 AD, mean sedimentation rates were 0.46mm/year in the north lagoon and 0.63mm/year in the south lagoon. After the 1950s, there was an exponential increase in mean sedimentation to 5.0 and 6.4mm/year in the north and south lagoons respectively."

Since the 1950s there has been a significant increase in sedimentation in the Coorong. This timeframe coincides with the installation of the major drains in the south east of South Australia.

[8] Wear, RJ, Eaton, A, Tanner, JE, Murray-Jones, S, The impact of drain discharges on seagrass beds in the South East of South Australia. Final report for the South East Natural Resource Consultative Committee and the South East Catchment Water Management Board. South Australian Research and Development Institute (Aquatic Sciences) and the Department of Environment and Heritage, Coast Protection Branch, Adelaide RD04/0229-3

Jenson et al, 2000 stated:

"In summary the panel found that the current operating system for the Lower Lakes, Coorong and Murray mouth is not sustainable with continued significant environmental degradation expected. In particular, it is anticipated that there will be increasing problems in both the Lakes and the Coorong related to reduced through flows, increased sedimentation and accumulation of nutrients."

Whilst this summary identifies the issue of environmental degradation, it does not identify the cause of the "reduced through flows" which would be critical to understand in order to address the degradation.

Jenson et al, 2000 also stated:

"ecologically, the most important geomorphic impact of flow restriction and regulation has been the development of Bird Island by the growth and consolidation of the former flood tidal delta immediately inland from the Murray Mouth. This is particularly related to the lack of discharge through the Mundoo Barrage."

and

According to *Gell P & Haynes D, 2005*:

"Before European settlement the Northern Lagoon of the Coorong was dominated by tidal input of marine water. Marine flushing also strongly influenced the Southern Lagoon but less frequently or to a lesser extent. At no time in the 300 years before European settlement has the Coorong been noticeably influenced by flows from the River Murray."

There are four key freshwater sources for the Coorong which played a more significant role prior to European settlement than the Murray Darling Basin, they are:

1. The top unconfined aquifer that dominates the south east of South Australia and is also fed by the much lower confined aquifer as a result of a geological fault near the border with Victoria;
2. A considerable amount of water flowed as surface and ground water from Western Victoria above the Glenelg River catchment via several streams. Just like the south east of South Australia, considerable changes have occurred to impact their pre European settlement flows; and
3. South east South Australia where 200mm of winter precipitation (net of evaporation and transpiration) over approximately 10,000 square kilometres of the South East (2,000GL).
4. Ground water flows for the adjacent area west of the Northern Lagoon, though no defined or poorly defined water ways so the water must have gone into the saline aquifer of this region.

It was the summer ground water flows of the Coorong that were critical as these offset the evaporation of 1,000GL for the Lower lakes keeping them in a fresh water bias except for severe droughts such as 1915 when nothing entered from the Murray Darling Basin. In 1915 the flows from the Coorong were unable to offset the evaporation and seepage rates of the Coorong plus the evaporation of the Lower Lakes.
The solution to environmental degradation of the Lower Lakes and Coorong in the past 15 years has been focussed on increased fresh water supplied from the Murray-Darling system. The supply constraint issues the Murray-Darling Basin Authority are confronted with in trying to deliver high volumes of environmental water demonstrates the Murray-Darling system did not evolve in a manner that would regularly supply the volumes of environmental water which are now being directed towards the Lower Lakes and Coorong.

The Ramsar listing of the Coorong in the 1980s has further complicated the management of this system with it now being subject to international jurisdiction; in effect we have lost our sovereign right to manage this system.

The scientific evidence that the Lower Lakes should not be retained as an artificial environmental at 0.75m AHD continues to mount but the political will to act is lacking. The need for a change of management of the Lower Lakes was recognised in the 2013 *Adequacy of Water Storages in NSW* report which included the following recommendation:

"Recommendation 13

That the NSW Government make representations to the Commonwealth and South Australian Governments to initiate a review of the current management of the lower lakes of the Murray Darling Basin. This review should focus on returning the Lakes to an estuarine system by building barrages upstream rather than at the mouth, thereby reducing the volume of water currently required and improving the productive and environmental outcomes for New South Wales."

Further recognition of these issues was made in the Senate Select Committee on the *Murray-Darling Basin Plan Refreshing the Plan* report in March 2016. Recommendations 11 to 15 specifically dealt with the Lower Lakes and Coorong including consideration of:

- The removal of Bird Island;
- The economic value of fresh water evaporated from the Lower Lakes;
- Reassessment of the Coorong's Ramsar listing from a freshwater system to an estuarine system; and
- Removal of some or all barrages or modifying to allow the ingress of saltwater into the Lower Lakes and assess the feasibility of connecting Lake Albert and the Coorong direct.

The strong scientific evidence demonstrates that increasing freshwater flows from the Murray-Darling Basin system in the Lower Lakes will not correct the environmental degradation that has occurred in the Lower Lakes and Coorong.

In fact the environmental degradation was caused by the south-east drainage system, construction of the barrages and maintaining the Lower Lakes at 0.75m AHD. **The focus on end-of-system flows and lack of consideration of engineering solutions in the Lower Lakes indicates politics rather than science continues to dictate environmental water management in the Murray-Darling Basin.**

Given the issues highlighted in this submission in relation to the efficiency and sustainability of environmental water being managed by State and Federal Government agencies Griffith City Council recommends the NSW Government challenge the Federal Government decision not to implement three out of four recommendations of the March 2012 Senate Legal and Constitutional Affairs References Committee Report, and urgently requests a full review of the *Water Act, 2007*.

h) the management, appropriateness, efficiency and reporting of

i) inter-valley transfers

Inter-valley transfers of water allocations allow water to move to its highest and best use. The basis of highest and best use should be productive use of water to move between the Murrumbidgee and Murray Valleys at times of shortages in a valley. The 100GL cap on inter-valley transfers between the Murrumbidgee and Murray does create some impediment and management issues.

The principle of inter-valley transfers for productive use is supported by Griffith City Council.

However, inter-valley transfers should be restricted to productive water and not used by government agencies to transfer excess water from one valley to another in order to capitalise on/profit from/manipulate usages by water markets. Government agencies using inter-valley transfers also restrict the amount of productive water which can be traded within the inter-valley transfer cap.

The announcement of the opening of inter-valley transfers needs to be better communicated.

In 2015/16 there were instances when some water traders who closely watched the inter-valley transfer cap were aware inter-valley trade was opened and were able to trade water inter-valley. This trade was soon stopped; whilst most water owners were unaware that trade had opened and then quickly closed.

The reporting of who is transferring water inter-valley should be transparent.

ii) conveyance and loss water

The allowance for conveyance and loss water in the Water Sharing Plans reflects water delivery efficiencies. According to the DPI water update the **Murrumbidgee Valley** as at 1 August 2016, there was 3,027GL of total available resourcing. 589GL of this is set aside for losses (transmission, evaporation, operational) and 317GL for conveyance.

Losses are based on water requirements to run the river under dry conditions. Given the third wettest June on record in NSW 2016 and southern New South Wales recording the wettest July in over 20 years the assumption of dry conditions is flawed. Of the 3,027GL total available resources in the Murrumbidgee Valley on 1 August 2016, 30% was set aside for conveyance and losses. The Murrumbidgee and Murray Rivers are being run at very high levels as at early August 2016. Despite how wet the catchment and river systems are, the worst case scenario loss allowances are being held in storages rather than being allocated for productive use.

Loss water is being used by government agencies to prop-up environmental flows. In some instances when environmental water is being delivered part thereof is accounted as loss water which means environmental accounts are not being fully and reasonably debited. **Preferential "loss allowances" for environmental flows are not made for irrigators and this is allowing government agencies to unfairly maintain water in storage which could otherwise be available for production.**

iii) carryover

Griffith City Council in principle supports carry over, however, it has concerns about the current rules being manipulated by government agencies and water traders. General security water for productive use only should be allowed to be carried over.

The principle of carry-over is sound, allowing general security irrigators to manage their allocation risk by carrying forward unused water from one year to the next. **In practice however, general security irrigators rarely have excess water at the end of the year and are in fact purchasing water to carry forward.**

Whilst the purchasing of this water does allow irrigators to manage future allocation risk, the money spent on purchasing carry forward water is no longer available for expenditure locally which has broader social and economic impacts. These impacts include hiring labour and redeveloping farms using local equipment and contractors to improve future farm performance and build business resilience.

All carryover water is lost if the dam spills, an event which also includes "technical" spills when it may be claimed that the dam would have spilt if the government had not released some water to increase "air space".

Carry over was original set in the *Murrumbidgee Water Sharing Plan* at 15% of general security entitlements. In 2008 carry over was increased to 30% without notice. At face value this increase appeared beneficial; however there were negative impacts. At the same time the carry over rules were changed. In 2008 rules and regulations regarding other water holdings including environmental and conveyance were re-interpreted to permit water to be carried over. Previously unused water at the end of the water season was reallocated to all water users the following year.

As general security irrigators wear the majority of the allocation risk in the Murrumbidgee Valley, access to carry over by water categories of entitlements other than general security is inappropriate. Other classes of water which are not subject to the same allocation risk should not be permitted carry over water.

Carry over rules are not sensibly streamlined across the southern connected system or the southern states, which makes them open to manipulation by water traders and government agencies via processes including inter-valley transfers, spill rules, trade rules, conveyance rules and cross-valley or cross-border or cross-season alterations to water classifications. Government agencies are able to offer excess water for sale. Irrigators, to manage their general security allocation risks are now purchasing significant volumes of water towards the end of the water year to carry over.

Government agencies and water traders are taking advantage of this situation to hold water towards the end of the year and sell to irrigators for inflated prices, which is lining the coffers of government agencies and water traders, but not assisting rural and regional economies, who depend on irrigation to prosper. Government sale of water at inflated prices is a *quasi-tax*.

The basis for carry over remains sound, however:

- It should be restricted to general security water available for productive use only; and
- The carry over rules in relation to so-called spills needs to be reviewed.

Government agencies which are not using water for productive purposes should not be permitted to carry water over for subsequent sale.

iv) the management and reporting of the water market

The *Water Management Act, 2000* allowed the separation of land and water and the sale of permanent water entitlements. This effectively created a property right for water. The Federal Government significantly distorted the permanent water market last decade through its buybacks program. Water was purchased from “so-called” willing sellers (the majority of which were cash starved businesses suffering from the 1:1,000 year millennium drought). When the Government withdrew from the market prices crashed overnight.

It is possible to track the price of permanent water sales through the NSW Water Register maintained by DPI Water. The timeliness of this data is frequently a concern.

There is no system or register for the recording of temporary water sales (allocation assignment). There is a lack of transparency in the temporary water market. NSW Government is the largest owner of water in NSW and able to offer excess water for sale. There is potential for the NSW and Federal Governments to hold water to sell on the temporary market when water values are peaking due to scarcity. These sales effectively become a *quasi-tax*. **Government selling temporary water to irrigators at inflated prices is denying regional communities expenditure which could remain in the local community to drive local economic prosperity**.

Water is the oil of the 21st century. Issues surrounding foreign ownership of agricultural land are frequently in the press, but there is little with regard to the foreign ownership of water entitlements. How well is Australia protecting our water resources from foreign ownership as compared to land? What is considered to be NOT in the national interest with respect to foreign ownership of water? The World Bank, International Monetary Fund and International Financial Institutions have a shared vision and goals with respect to water (and other publicly owned utilities). In the 1990s water was recognised by UN agencies as an economic good which overlooked water as a basic human need and social good. Deregulation and privatisation turns the focus of water globally towards being an economic good. Globally the trend of multi-national investment in water includes Wall Street banks and elitist multi-billionaires.

"Best practice" options advanced by the UN and international financial institutions entail public-private partnerships whereby "unbundling" is required, or splitting the profitable from unprofitable sectors. The profitable sectors are privatised, leaving users to pay higher fees in full cost recovery charges or tariffs. We have seen the "user pays" model advanced and emerge with power and telecommunications deregulation and privatisation, with a global trend to multi-national investment in utilities. Attached as Appendix A is a scoping analysis on this topic prepared by Jeanine Bird.

It appears water has been influenced similarly, and, with the multi-layered State and Federal organisations imposing red tape in "water management", we must ask ourselves:

Have we as a nation allowed ourselves to be influenced by models put forward which have enabled private multinational organisations to control or trade our water at the expense of basic needs and vital inputs (i.e. food security); and is this really in the nation's best interest?

i) Any other related matter

The number of inquiries at a State and Federal level into water and the Murray-Darling Basin Plan which have gone through rigorous processes and made sound recommendations which have not been actioned is a grave concern for Griffith City Council. Rural and regional communities such as ours continue to be disadvantaged by water management practices at a State and Federal level.

Global Planning & Co-optive Agenda to Control Water

Stage 1: Scoping Report

Scoping in Progress @ 8/8/16:
Stage 1: United Nations Global Planning
Stage 2: Global Financial/Banking Institutions
Stage 3: Multinational Corporations

Appendix 1

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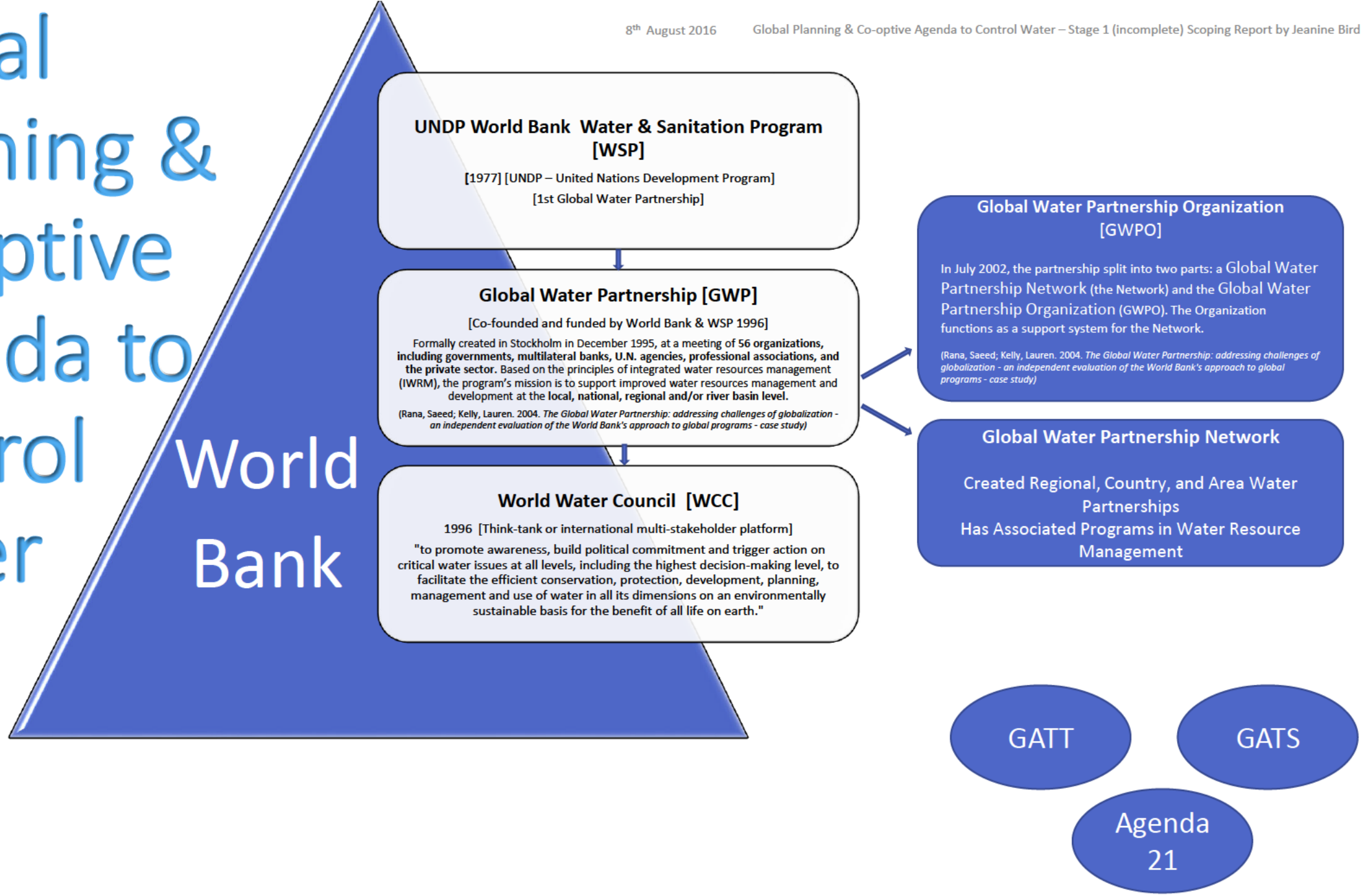
Global Planning & Co-optive Agenda to Control Water



World Bank

IMF - International Monetary Fund

IFC - International Finance Corp
IFIs - Intnl Financial Institutions

Global Corporation's Water Funds

WTO & UN Agencies, Treaties & Programs (ie GATS); G7, G20, EU, APEC etc

Shared Vision, Goals, Power, Agendas

Deregulation

A major impediment to awarding water rights is the resistance of borrowers *(ie developing countries' govts)* **to relinquishing control.** Many borrowers fear that private rights will lead to private monopolies. Many of these fears are unfounded.

Research shows informal water trading of de facto rights takes place even when expressly forbidden by law, as in Fordwah-Sadiqia in Pakistan and Gujarat in India. The issue for the Bank is how to leverage these examples into public policy discussions with borrowers. Major efforts are under way on water rights and pricing in Brazil and Mexico, but substantial resources and time are required to identify users and register water rights. [1]

Privatization

(Full Cost Recovery, or User Pays)

In 2001, the World Bank lamented **"Full Cost Recovery",** and their promotion/sale of the **concept of water as an economic good** *(not social good, or basic human need)* wasn't being accepted, which is certainly no longer the case.

The policy to mainstream economic and financial aspects of pricing policy has largely been won in the Bank, but not in client countries or the international political arena. A large external constituency of stakeholders still wants to maintain social water pricing, which is difficult to manage with formulaic guidelines [2]

Trade Liberalization

Free Trade Agreements and Regional trading blocks have been established globally, backed up with NGO's, think-tanks and policy influence.

The World Bank notes that for successful privatization, it requires appropriate "sequencing", starting with institutional and regulatory reform.

In Australia, by invoking Ramsar, this reform was ultimately realized via the External Affairs Power of the Constitution, extracting water from public control in the name of the "environment" (undefined), and allowing public trading. *See hexagon*
Also IFI Goldman Sachs influence and water holdings; and ex Goldman Sachs PM of Australia, Malcolm Turnbull.

Commodification

Development and promotion of market-based theories and practices for water resource management

Australia's water trading has pitted ***Water the Vital Input (Means of Production)*** against ***Water the Commodity.*** ***Water as a means of production is no longer considered essential to human survival and endeavour.***

Producers invest in infrastructure and overheads to produce; Traders have no relationship, association, or debt to infrastructure, employees and a productive region. Water, the Means of Production, and the Commodity are 2 different things, commercially and socially at opposite ends of the richter scale. [3]

Structural Adjustment

"Public Sector Reform" – privatization of State Owned companies, eg water, energy.

Leverage applied to "reform" - initially through structural adjustment loans (SAL) or water sector adjustment loans (WATSAL) from the World Bank; with regional development banks requiring privatization via concessions, leases, management contracts, trading rights or public-private partnerships

Re-Brand Water as *"Economic Good"*, not a *"Social Good"*, or *Basic Human Need/Right*

(ie "free water" threatens profits & undermines a Nation's public sectors)
World Bank: *"…work is still needed with political leaders in some national governments to move away from the concept of free water for all."* [4]

In summary, the general purposes of the Water Act and the Basin Plan are:
to give effect to relevant international agreements[5]

1 World Bank, *Bridging Troubled Waters: Assessing the Water Resources Strategy Since 1993,* Operations Evaluation Department, World Bank, Washington, D.C. October 2001, p. 23
2 World Bank, *Bridging Troubled Waters: Assessing the Water Resources Strategy Since 1993,* Operations Evaluation Department, World Bank, Washington, D.C. October 2001, p. 24
3 Jeanine Bird – Submission No 358: Senate Inquiry on Social, Economic & Environmental Impacts of the MDB Plan on Regional Communities. September 2015, pages 8-11
4 World Bank, *Sourcebook on Community-Driven Development in the Africa Region,"* Africa Region, World Bank, Washington, D.C. March 17, 2000, Annex 2.
5 First on the list: Australian Government Response to the Senate Legal and Constitutional Affairs References Committee Report: *A Balancing Act: provisions of the Water Act 2007* ***P4***

World Bank | Int. Monetary Fund (IMF) | IFC - Intnl Finance Corp (IFIs – Int Financial Institutions) | Global Corp's Water Funds | WTO & UN Agencies, Treaties & Programs

Shared Vision, Goals, Power, Agendas

Rhetoric: Poverty Reduction, Environmental Sustainability *Agenda:* Privatization and Commodification

Deregulation

Privatization (Full Cost Recovery/User Pays)

Trade Liberalization

Commodification

Structural Adjustment

Re-Brand Water as *"Economic Good"*, not a *"Social Good"*, or *Basic Human Need/Right*

PR Campaign to achieve above pitched to Sovereign Nations via UN & Global Organisations/IFIs/Bodies

EXAMPLES:

UN Organisations/Associates:

GWP, GWPO, World Water Council, UNDP WSP, WTO, CGIAR, GEF, MLF, ProCarbFund, CEPF, GIF, ESMAP, CGAP, infoDev, PPIAF, CA, IF, IFC, FSAP, FIRST, GCN,UNCTAD, World Links, CapNet, WMO, UNESCO, EWP, Ground Water MATE, IWR, UN-Water, WIN, WSSCC, WHO, GEF, FAO, NGOs, WSSD, WWF, WWF (World Water Forum), WRCC, INBO, IUCN, ICLEI, SOPAC, SIWI, UNEP-DHI Centre, UNDP, IWRM etc etc

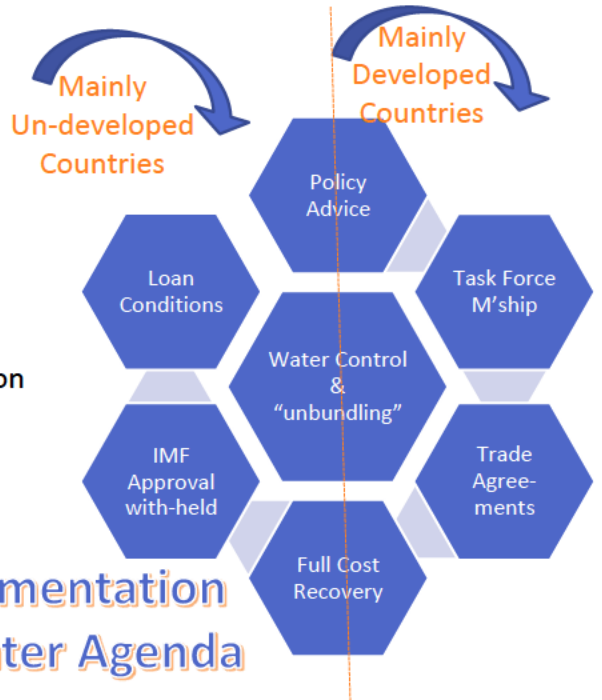
Partners from:

UN Organisations
Global Banks
International Finance Institutions
Multinational Corporations
NGOs
Academia
Bi-lateral Devt Agencies
Govt. Devt Agencies
G7, G20, EU,
APEC, NAFTA
Private Agencies
Voluntary Agencies

Promoting Agenda by:

Work Programs
Various Programs
Global & Regional Summits & Conferences
Advisory Boards
Task Forces
Global Agendas
Vision Statements
Glossy Publications
Expensive Reports

Research
Information
Websites
Theories
Information Data-bank
Advancing Market-based solutions
Global Network
Lobbying & Advising Governments on Policy
Funding



Developing Countries Co-opted More Forcefully (policy advice & loan conditions)

CONTINUED FROM PREVIOUS PAGE

Developed Countries Co-opted via Trade Agreements & Membership of Task Forces

National Governments require External Capital and Foreign Investment

(particularly since UN/IMF WTO have convinced countries to "float" their currencies as opposed to Nations issuing and setting their own currencies)

Public Sector Reform:

1. Trade Liberalism
2. Privatisation of State-owned utilities (water, energy, transport)
3. Deregulation
4. Fiscal austerity for "users" left with "unprofitable" sector of utilities after "**unbundling**" (profitable from unprofitable sectors and privatising the profitable sector), leaving USERS to PAY higher fees in full cost recovery charges or tariffs .

Integrated Framework:

1. Coordination of IMF, World Bank and World Trade Organisation (WTO) policy advice to achieve Legal, Regulatory & Institutional reform
2. Regulatory & Legal reforms (eg under WTO, GATS, GATT, Lima, Bretton Woods, Ramsar, Trans Pacific Partnership) are required to achieve favourable "investment climates" were advanced a policy, or imposed through IMF, World Bank, IFC or IFI loan conditions
3. Trade agreements viewed as major mechanism for neo-liberal reforms

Leveraged with

- **Policy Advice**
- **Loan Conditions to impose:**

- Water Privatization – define & establish water rights and licences
- Separate the regulatory & operational functions of water utility
- Develop independent & autonomous regulatory function
- ***Unbundling*** – separate profitable from unprofitable utility sectors (privatise profitable; users pay for unprofitable)
- Full cost recovery requirements with adjustments for inflation
- Sale of public assets
- Structural Adjustment conditions
- Legal, regulatory & Institutional reform giving private operators = access to public providers
- Transfer restrictions governing conversion or transfer of local currency *(main mechanism for eroding import taxes & duties to cross-border corporate trade)*
- Waiving of import taxes & duties *(saving corporates $millions & costing developing nations essential revenue)*

Non-compliance Repercussions:

- Loan advances withheld
- No IMF "Seal of Approval"
- Loss of access to:
  - multi-lateral credit
  - Bi-lateral credit and/or aid
  - Private Sector Investment

Structural Adjustment Loans were also called Poverty Reduction Support Credits (PRSCs) – and generally have **water privatization** as a condition

Lima Declaration
Human Rights & Gender Equality treaties
GATT – General Agreement on Tariffs & Trade (1948)
WTO Agreement *(encompassed GATT 1995)*
GATS – WTO Gen. Agreement on Trades & Services 1995 (Water, Energy, Telecommunications etc)
Agenda 21 (1992) – UN Conference on Environment & Sustainable Devt (Rio de Janerio)
Free Trade Agreements
Climate Change & Environmental Agreements
Multilateral Investment Guarantee Agency [MIGA] 1998
Dublin Principles for Water Devt & Management (Int. Conference on Water and the Environment - Dublin - Jan 1992)
2030 Agenda (2030 Agenda for Sustainable Development – Sept 2015)
Paris Agreement (Climate Change – Apr 2016)

Nations desperate for foreign investment or credit have secretly negotiated and agreed to IMF policy prescripts. Citizens are/were often unaware, and didn't/don't consent (eg Bolivian cases).

Global Water Partnership (GWP) – 2010 Review

Source of information on this page (unless otherwise specified):
GWP Global Program Review 2010 (Vol 4 Issue 3 – July 2010)
Author's emphasis [bold, italics & colour highlights]

1.3 Accordingly, an International Conference on Water and the Environment in Dublin (January 1992) **established a set of principles for water development and management** (Box 1) and the (June 1992) UN Conference on Environment and Development in Rio de Janeiro fully endorsed the move toward **more integrated and comprehensive water resources management** (Box 2). The Rio Declaration also *proposed "establishing a new and equitable partnership through the creation of **new levels of cooperation among States, key sectors of society and people."***

Together, these conferences established the rationale for a global partnership to provide guidance to water management and development.

Box 1. The Dublin Principles for Water Development and Management
"1. Fresh water is a finite and vulnerable resource, essential to sustain life, development and the environment.
2. Water development and management should be based on a participatory approach, involving users, planners and policy-makers at all levels.
3. Women play a central part in the provision, management and safeguarding of water.
4. **Water has an economic value in all its competing uses and should be recognized as an economic good."**
Source: Dublin Statement on Water and Sustainable Development, January 1992.

Box 2. Agenda 21 Sets the Stage for GWP
"The holistic management of freshwater and the integration of sectoral water plans and programmes within a framework of national economic and social policy are of paramount importance for action in the 1990s and beyond."
Source: Agenda 21, Section 2, Chapter 18.

The continuation of the quote in "Box 2" from the GWP document, as stated in Agenda 21 (1992), under

A. Integrated water resources development and management

Basis for action
(18.6)
The fragmentation of responsibilities for water resources development among sectoral agencies is proving, however, to be an **even greater impediment to promoting integrated water management** than had been anticipated. **Effective implementation and coordination mechanisms are required**.
My emphasis: Source Agenda 21, Section 2, Ch 18 (18.6)

Table 1. Condensed Timeline of the GWP

Date	*Event*
1995	UNDP, SIDA, and the World Bank proposed a Global Water Partnership
1996	Interim Steering Committee formed a Technical Committee to create the analytical framework for sustainable water resources management
1996	***GWP established.*** A Secretariat to manage the GWP was set up in the Swedish International Development Agency (SIDA)
1996	GWP Southern Africa Regional Technical Committee established
1997	GWP Southeast Asia Regional Technical Committee established
1997	Network of Regional Technical Committees formed
1998	Country Water Partnerships initiated
2000	Framework for Action was launched at the Second World Water Forum at the Hague
2000	Start of transformation of Regional Technical Committees into Regional Water Partnerships
2001	Area Water Partnerships initiated
2002	***GWP Secretariat becomes an intergovernmental organization based in Sweden called the Global Water Partnership Organization (GWPO)***
2002	The World Summit on Sustainable Development called for all countries to establish national integrated water resources management (IWRM) and water efficiency plans by 2005
2002–2003	First external independent evaluation of GWP
2003	GWP Regional Partnerships covered 11 regions: Central America, South America, Mediterranean, Central and Eastern Europe, Central Asia, China, Southeast Asia, South Asia, East Africa, West Africa, Southern Africa
2008	13 Regional Water Partnerships coordinate 70 Country Water Partnerships that together include 1,800 partners
2007–2008	Second external independent evaluation of GWP

Source: Prepared by IEG based on documents provided by GWP.

The Politics of Water – Coercing Nations to Comply

The IMF forced the Bolivian Government to privatise water by refusing to renew an "economic assistance" loan worth $25m unless Bolivia made major "structural adjustments" to it's water system and services (1999). A deal was done whereby "Aguas del Tunari", a multinational consortium was given control of the nation's 3rd largest city's water supply (Cochabamba). Residents were immediately faced with price hikes, sometimes more than double what they were previously paying.

The city's citizens rose up, and their protests shut Cochabamba down. Citizens weren't happy that under the deal, *Aquas del Tunari* was financing a new dam and raising funds to pay the debts of their State agency which had previously managed their water systems (SEMAPA). Military intervention and martial law couldn't contain the citizen's outrage, and untimately the privatisation contract was cancelled. Similarly, in 2005, Bolivia cancelled El Alto's water concession to the World Bank and French company Suez, privatised in 1997 – again, under pressure from the World Bank.

Jim Schultz, Executive Director of *The Democracy Centre* in Cochabamba, wrote in "The Nation" - The Politics of Water in Bolivia:

"That choice was forced on them, as it has been in many poor nations around the world, when the World Bank made privatization an explicit condition of aid in the mid-1990s. Poor countries such as Bolivia, which rely heavily on foreign assistance for survival, are not in much of a position to say no to such pressures.

"The promise of private investment has turned out to rely on **market-rate pricing that the poor cannot afford.**"

"World Bank water officials claim all the best intentions when they make the push for water privatization. The bank has argued that poor governments are often too plagued by local corruption and too ill equipped to run public water systems efficiently. ***Handing water over to foreign corporations,*** *the bank has said, opens the door to needed investment and skilled management.*

"However, to borrow a phrase, the road to bad public policy is often paved with good intentions. Bolivia's experience with **bank-forced water privatization is a striking example of the yawning gap between World Bank theory and how things actually work in the real world** for the poor families who have to live with the results."

..... "In El Alto the cost of getting a water and sewage hook-up **exceeded a half-year's income at the minimum wage**. The promise of ***skilled management*** turned out to be about **corporate leaders willing to let the poor suffer and,** in Bechtel and Abengoa's case, **stand aside while they were shot**.

"No one –not the Bolivian government, not the World Bank and certainly not the multinational corporations involved – ever asked the Bolivian people, **"Do you want to privatize your water?"** One of the most important policy choices a people can make–public or private? – was taken away and **made by economists and theorists in a huge white stone building a hemisphere away**.
[end quote; emphasis added]
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11 August 2016

Brett Stonestreet
General Manager
Griffith City Council
Via email:

Dear Brett

RE: Inquiry into the augmentation of water supply for rural and regional New South Wales.

I understand that Griffith City Council is preparing a submission to the Legislative Council's ***Inquiry into the augmentation of water supply for rural and regional New South Wales***. Murrumbidgee Irrigation makes the following comments, which we trust will be of assistance to your submission.

Term of reference (a) investigate the requirements for a water equation (demand and supply out to the middle of this century) for regional NSW.

A recent forum hosted by Adrian Piccoli, MP at our offices demonstrated the level of regional development including infrastructure in our area. Our cropping diversity and processing and manufacturing industries support a low unemployment rate and vibrant community. We anticipate this trend continuing into the future and have established a new corporate plan that promotes business growth in the region. We have already seen water demand increase in our region with investment in new and existing businesses. Consequently, we have several projects currently underway (eg Northern Branch Canal) looking at the potential to expand the delivery capacity of parts of our irrigation network.

Term of reference (b) examine the suitability of existing NSW water storages and any future schemes for augmentation of water supply for NSW, including potential for aquifer recharge.

On route storages enable improvements in both deliverability (access) and efficiency (volume) and are a mechanism to assist constraint management. As part of our round 3 application to the Commonwealth under the Private Irrigation Infrastructure Operators Program (PIIOP) we are investigating improving the capacity of one of our in-system storages to enable better deliverability and system water efficiency for our customers. We recognise that any new water storage must be assessed for its whole of life costs as well as negative impacts on third parties. However, opportunities for building in-river storages that improve deliverability and environmental outcomes should be promoted.

Term of reference (f) examine social, economic and environmental aspects of water management practices in NSW…

The Murrumbidgee Regulated Rivers Water Sharing Plan is the foundational document for water sharing between communities and the environment in our valley. The Water Sharing Plan sets aside provisions for the environment that are due for review. These planned environmental rules were created prior to the environment owning water in its own right. They should be reviewed to ensure that the best environmental and community outcomes are still being achieved.

With respect to the implementation of the Basin Plan we support the 1500GL cap on buybacks and promote the investment in infrastructure and on-farm efficiencies. Along with NSW Irrigators' Council we also believe projects that deliver equivalent or better environmental outcomes with less water should not be limited to a 5% improvement in the Sustainable Diversion Limit. These are all mechanisms that focus on efficiency and triple bottom line outcomes. Any increase in the Sustainable Diversion Limit will reflect directly in the productive capacity of irrigated agriculture in this region and NSW.

Yours sincerely

Karen Hutchinson
Policy & Stakeholder Manger