WATER POLICY - BRIEF

Regionals acknowledge that water resource catchment, supply, distribution and management, is the constitutional responsibility of the State Governments. However, the Commonwealth has a role in the planning, incentivising and funding of visionary infrastructure to move water from regions with significant surpluses to areas of agriculture, industry or established habitation deficient in water.

The availability of abundant and affordable water supplies is an integral component to national security and resilience. Provision of major water infrastructure increasing the volume and reliability of supply to contribute to the growing of the economy and nation building.

The Regionals Water Policy is a substantive policy and shall not be subordinate to or compromised by any other policy. Water is an abundant and sustainable resource but its natural delivery system needs to be complemented with significant infrastructure to ensure water security for our cities, towns and industries.

The Regionals shall:

- **Guaranty the water security of all established cities and townships through the delivery of affordable and plentiful supply.**
- **Support the provision of major water infrastructure to future proof our cities and townships.**
- **Require that current water storage capacity for domestic purposes be quadrupled by 2050.**

- **Require that beyond 2050 water storage capacity be increased in line with population increase.**
- **Support visionary water infrastructure projects that guaranty future water security, enhance agriculture and industry to provide economic growth.**
- **Require the methodology used to evaluate cost/benefit of major water infrastructure projects to be reviewed.**
- **Support the development of a National Water Grid.**
- **Support river flow controls and diversions that enhance environmental outcomes through the provision on permanent ponding or extending the flow period of northern river systems.**
- **Support the mitigation of ocean 'acidification' though the minimization of river outflow.**
- **Enhance soil carbon sequestration by diverting excess water to arid regions to encourage sustainable plant growth.**
- **Allow land owners to harvest, divert and store 10% of their property's total rainfall.**
- **Require land owners to mitigate evaporation of stored rain water.**
- **Require the provision of a public register of irrigation water licenses, trades and allocations.**
- **Require all irrigation water licenses to be held by agricultural irrigation land owners.**
- **Require irrigation water licensees who are not currently agricultural irrigation land owners to**

purchase or lease properties that can be sustained by their irrigation water license entitlement.

- **Require all irrigation water licensees to produce crop or livestock quantities commensurate with their water allocation.**
- **Require that irrigation water license entitlement be reduced by 10% where an irrigation water licensee who for three consecutive years fails to produce crop or livestock quantities that commensurate with their water allocation and in line with the local region production average.**
- **Encourage the planning and development of sewage treatment systems that direct the treated outflow to suitable inland areas.**
- **Require sewage treatment systems to maximize useful by-products including methane, urea and recycled water for agricultural or industrial use.**
- **Incentivize the home installation of three stage under sink garbage disposal units to reduce food waste being directed to land fill.**

WATER POLICY - DETAILED

INTRODUCTION

Water security has become an increasing problem as the population of Australia increases and it has been exacerbated by decades of failure to build major water infrastructure. Most political parties have been beset by an environmentalist induced paralysis rendering them virtually incapable of supporting the building of dams, distribution networks and irrigation schemes.

Water is an abundant and sustainable resource but its natural delivery system is plagued with unreliable cycles of varying quantity and frequency across our land mass. Since our first civilizations, man has harvested, stored, diverted and distributed water over vast distances for domestic and agricultural needs. With today's technologies there is no reasons we cannot replicate aqueduct systems of the past on a much greater scale.

Australia does not have a water problem, it has a logistics problem together with a lack of vision, political will and commitment to construct the infrastructure needed to move water from where it is to where it is needed. The commitment and actions of our past visionary colonial leaders and government shames todays bickering Australian governments and leadership.

Methodology to Determine Viability of Water Infrastructure Projects

The current methodology to determine viability of water infrastructure projects is biased to ensure the ability recover the cost project through the direct sale of water in an unrealistic timescale with no consideration of other benefits derived from the additional storage, diversion, ponding or river flow control.

As dams and associated infrastructure typically have life-of-type well beyond 100 years it is reasonable that the direct monetary return for the costs by the direct sale of water be assessed against a repayment period of 100 years. Additionally, the assessment shall take full account of the projected increases in the level of economic activity the infrastructure project generates over the period of 50 years from the completion of the project.

The purpose of major water infrastructure projects is to guaranty water security, provide for the development of agriculture and industry while contributing to the economic development, wealth and wellbeing of the nation. Accordingly, a bureaucratic methodology that determines the approval of a project primarily on the prompt recovery of costs is an affront to public and the nation. It is essential that the assessment methodology be reviewed to ensure that the approval of costly and long-term infrastructure projects is not jeopardized by unrealistic monetary returns in unreasonable timescales.

Past Visionaries

In 1894, a mere four years after becoming a self-governing colony and having a population of about 50,000, Western Australia undertook visionary water supply infrastructure project. Borrowing £2.5M (today equivalent to $40B), built two dams, four pumping stations and more than 500kms of pipeline to the goldfields. One hundred and twenty years later, this infrastructure is still delivering water while the Kalgoorlie region is still producing great mineral wealth.

Today Australia is a nation of more than 25million people and infinitely more capable servicing borrowings for water infrastructure that would create prosperity well beyond that derived from the Kalgoorlie region for more than a hundred years. Investment in water infrastructure is critical to future wealth creation.

National Water Grid

The concept of the National Water Grid is welcome but projects currently supported by Commonwealth National Water Grid Authority appears to be a mismatch of unrelated minor projects, with zero connectivity that should be the sole responsibility of the relevant state government. Few of the projects harvest significant quantities of additional water with even fewer moving the water beyond the immediate region.

The current National Water Grid Authority is little more than a Commonwealth duplication of bureaucracy covering projects that should be the sole responsibility of state governments. The funding model for the majority of these minor in scope and low-cost projects needs to change to a simple Commonwealth to State contribution ratio, dependent on the state government allocating their portion in their budget expenditure. Other than funding the Commonwealth shall have no role in these projects.

The National Water Grid Authority shall be required to review its catalogue of projects to identify projects of less than $100million, those that are mere maintenance or upgrade of existing infrastructure or dealing with recycling of water. Those identified projects together with full funding shall be transferred to the Water/Development Department in the relevant State.

The prime role of the National Water Grid Authority shall be the delivery of nation building water infrastructure to harvest, store and divert large volumes of additional water whereby provisions are made for the transfer of a portion that water to other regions. The projects shall have connectivity such that they provide for the transfer of water from regions with abundant rainfall to areas with deficient water supplies over extensive controlled distribution network.

https://www.nationalwatergrid.gov.au/

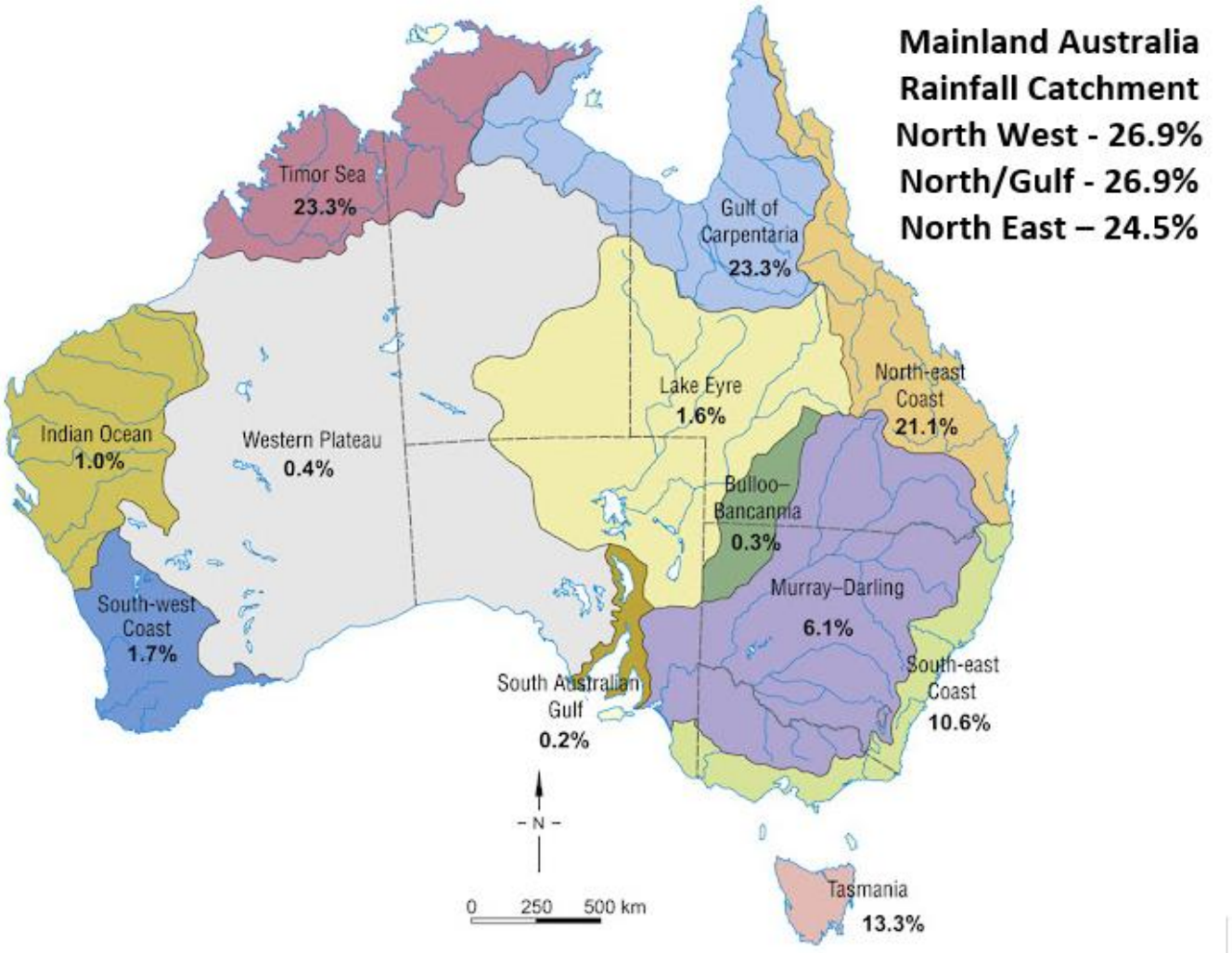
Northern Australian Water Resources

Nearly 80% of mainland Australia's rainfall is confined to the far north of our continent, a vast area with only 5% of the nation's population. Harvesting, diverting, storing and distributing water resources of northern Australia presents the nation's best opportunity to both guaranty water security and create economic growth.

Other than the loss from evaporation the harvesting, diverting and storing of water does not remove water from local river systems and environments. Rather it provides better flow management, prolongs the period of the river flow, can provide permanent ponding to enhance the local environment and allows better utilization of water resources.

Northern Australia with its distinct Wet Season and Dry Season, river systems can receive 80% of their annual rainfall in less than two months, creating short-term raging torrents, depleting to near dry river beds for months of the Dry Season. While this may be the way of nature, better economic and environmental outcomes can be achieved with the provision of major water infrastructure that mitigates the extremes of these Rush/Dust, river cycles.

Australian Rainfall Catchment Areas



Bradfield Scheme

The proposed Bradfield Scheme of the 1930s has been revisited a number of times over the past 90years, some serious and some merely election fodder. While the original concept was simply a diversion of some of the peak flow of several North Queensland rivers, inland with the intent to irrigate some areas with the bulk flowing to Lake Eyre.

It was also envisaged that the permanent ponding of Lake Eyre and its subsequent surface evaporation together the evaporation from associated diversions, storage and irrigation would result in additional rainfall, west of the Great Divide in the Murray Darling Basin to effectively drought proof much of eastern Australia. While at time there was anecdotal evidence that on the rare occasions Lake Eyre had flooded, the eastern seaboard reported good harvests for the following 7 years. Subsequent reviews of the Bradfield Scheme have dismissed that proposition.

No doubt with the passing of time and advances in technology, the nation has the capacity and capability to deliver a significantly improved, efficient and beneficial major water infrastructure project than the original Bradfield Scheme. Even the Bradfield Scheme 2.0 touted during the 2020 Queensland State Election still restricted itself to the same water sources but limited its westward distribution, provided for greater utilization of water for North Queensland irrigation before directing the flow south to the northern reaches of the Murray-Darling Basin.

All Bradfield Scheme proposals provided for the delivery of nation building water infrastructure to harvest, store, divert large volumes of additional water and transfer a significant portion that water vast distances from northern Australia to southern flowing watercourses. In effect it is the forerunner of a National Water Grid. Accordingly, National Water Grid Authority shall be tasked and funded to deliver an equivalent scheme.

Northern River Outflows

Nearly 27% of mainland Australia's river outflows are into the Gulf of Carpentaria yet none of these rivers have ever been identified as a source for inclusion a Bradfield Scheme. At minimum the Mitchell and Flinders Rivers need to be included in any plan to move water, from Far North and North Queensland to the south.

With some 54% of all mainland Australia river outflows into the Coral Sea and the Gulf of Carpentaria, harvesting, diverting, storing and distributing less than 2% of these outflows would provide sufficient water for any proposed Bradfield Scheme thus far.

Investment in Northern Australian Major Water Infrastructure

Regionals supports the systematic evaluation of significant Northern Rivers as to their suitability for water storage, flow control, diversion and distribution to both enhance the local economic development and environment, together with assessing their capacity to contribute a National Water Grid to move water resources south to assist with drought proofing the nation.

Ord River Project

The Western Australian Ord Dam project completed in 1972 is the largest capacity dam in Australia with a volume of 5,641 gigalitres. In the early 1990's, it was decided that a hydroelectric power station would be built at the base of the Main Ord Dam. In order to be able to guaranty a reliable supply of energy a higher water level need. By building a weir across the existing spillway they could safely raise the storage level by six metres. This almost doubled the volume to 10,763 gigalitres (increasing the capacity to 21 Sydney Harbours)

Initially some 14,000 hectares of farm land was irrigated and current plans are to increase the area to 45,000 hectares. It is estimated that the water requirement for the planned increase will be about 600 gigalitres per year which is about 6% of capacity and less than 15% of the Ord River's average annual flow.

Very little of the productive potential of the Ord River Dam has been realized and never will be within its immediate environs. The only means to remedy this is to distribute the water to townships and cities hundreds of kilometres to the south. A feat not unfamiliar to Western Australia. The distribution of, as little as a quarter of the capacity of the Ord River Dam would supply Perth's water needs for 10years.

With nearly 27% of mainland Australia's river outflows into the Timor Sea, the Ord together with the Fitzroy River provide an abundant water source. Accordingly, National Water Grid Authority shall be tasked and funded to deliver a western seaboard equivalent of the National Water Grid, transferring northern Australian surplus water resources south.

Wider Scope of Assessment of Benefits of Water Infrastructure

While a visionary piece of major water infrastructure, the Ord River Dam project provides a valuable lesson in regards to moving ahead with developing northern Australia. While there is potential to harvest and store vast amounts of northern river water, there are serious challenges to realize direct benefits in the immediate region of the stored water and the development of downstream areas may not be sufficient to utilize a significant portion of the storage capacity. Accordingly, benefits other than the direct monetarization direct water use must be identified and include in cost/benefit analyst.

<u>River Flow Control</u>

The annual Rush and Dust cycle of northern rivers make for spectacular contrasts but they are less than optimum for the environment or sustaining the region. While upstream of water storage infrastructure will continue with it natural annual cycle, downstream will benefit from an extended regulated flow to both facilitate the development of agriculture and industry while creating the opportunity to enhance the natural environment by providing a regulated, all year-round water flow.

Sediment Out Flow Reduction

In addition to the massive outflow of northern Australian river systems during the wet season there is also a significant discharge of sediment into the oceans. Damming, diverting and ponding the waters of these river system can significantly reduce sediment discharge. Additionally, dredging sediment build up at the upstream dam wall and subsequent transfer of the sludge to surrounding land provides for improved soil fertility.

Enhancement of the Natural Environment

The Ord River experience has demonstrated that the water storage and controlled river flow has resulted in a substantial increase in not only the quantity of bird life but the number of specifies. It is also reasonable to expect that other fauna and flora would flourish. The delivery of major water infrastructure shall also assess the potential to provide permanent wetlands to enhance existing or create additional wildlife habitat.
https://www.lakeargyle.com/history-statistics-environment/birdwatching/
https://marinewaters.fish.wa.gov.au/resource/fact-sheet-ord-river/?pdf_export=1

Creation of Amenity

Many major water infrastructure projects have indirectly contributed to the amenity of the region through the creation of recreational water courses and lakes. The Ord River project in addition to the creation of the vast expanses of Lake Argyle, approximately 1,000km^2, the maintained 55km watercourse between the main and diversion dams underpins a vibrant regional tourist industry. Permanent ponding can also support a range of recreational activities.

Replenishment of Aquifers

As the foremost low-lying continent, geological basins form the vast majority of Australian landscape. As a consequence, corresponding major aquifers provide immense quantities of underground water that sustain regional populations and agriculture. The natural replenishment of these aquifers is often dependent on rare and extreme rainfall events and the water drawn from them is not readily replaced.

The aquifer of the Great Artesian Basin is one of the largest underground freshwater resources in the world. It is Australia's largest groundwater basin. The Basin spans almost 1.7 million square kilometres (over one-fifth of the Australian continent) and has a storage capacity of 64,900,000GL.

Major water infrastructure on northern Australian river systems shall be assessed as to their potential to replenish aquifers with excess water.

Soil Carbon Sequestration

Soil carbon provides for increased fertility and productivity. Atmospheric carbon dioxide is naturally sequestered into the soil through root growth. With the root mass being significantly more of the total mass of the plant, grasses are more efficient in soil sequestration of atmospheric carbon dioxide than trees.

While plant growth will provide for increased levels of soil carbon, levels are routinely compromised by surface soil disturbance and loss of soil moisture.

Major water infrastructure on northern Australian river systems shall be assessed was their potential to sustain and increase soil carbon.

Mitigation of 'Ocean Acidification'

The concern is that increasing levels of atmospheric carbon dioxide will make the worlds oceans more 'acidic'. Our oceans are currently alkaline with an average pH of 8.1 while pure water has a pH of 7.0 thus is considered more 'acidic'. The pH of river outflows will vary depending on their source but like melting Arctic and Antarctic ice contribute 'acidification' of the oceans. Diversion of water to provide additional soil moisture content, replenishment of aquifers and permanent ponding of fresh water can prevent a significant amount of the outflow of river systems thus mitigating ocean acidification.

Reduction of Sea Level

The rain events across Australia in 2009and 2011 associated with the La Nina conditions result major inland flooding events. Inland water flows reached Lake Eyre filling it to its highest level since 1974. This inland water had no outflow to the ocean and while some amount replenished natural aquifers, the majority ponded until it eventual evaporated and returned to the rain cycle.

This prolonged, on land retention of such a massive amount of rainwater had a noticeable impact on the sea level. While the sea level had been increasing a rate of 3mm per year, in the second half of 2010, they suddenly plummeted. By early 2011, they had dropped by 7 mm, the biggest drop since satellite measurements began in 1992. The reversal lasted until late 2011. The diversion of water to the interior can mitigate several years of sea level rise. https://www.newscientist.com/article/dn24080-how-an-ocean-went-into-hiding-in-australia/

Water Harvesting on Private and Leased Public Agricultural Land

Occupying landholders of private and leased public land, engaging in commercial agriculture activities shall be entitled to harvest and divert rainwater to enable the storages of the equivalent of 10% of the total rainfall of their property. All water harvested, diverted and stored under his entitlement is only for use within the property boundaries. Land holders shall as far practical and within reasonable costs, mitigate the evaporation of stored water.

Irrigation Water Entitlements

The primary intent of irrigation water is to provide for agricultural production, whether it be crops or livestock. The construction of public or private irrigation infrastructure or drawing water directly from our nation's rivers and their associated water entitlement licences are required to contribute to the national economy. The government's monetarization of water entitlement licences without guarantied delivery of produce from allocated water licence entitlement is essential.

Open Public Register

Regionals shall require the establishment of an open public register of irrigation water licences, trades and allocations. The register shall detail all records dating back to 01 July 2000.

Ownership of Licences

By 01 July 2030 all irrigation water licences shall only be owned by agricultural land holders. During the interceding period irrigation water licensees who are currently not owners of commercial irrigated agricultural land may purchase or lease agricultural land that can be sustained by their irrigation water licence entitlement or dispose of the licence to existing land holders.

Productivity Requirements

All irrigation water entitlement licensees shall produce crop or livestock quantities commensurate with their water allocation. Irrigation water license entitlements shall be reduced by 10% where an irrigation water licensee, who for three consecutive years fails to produce crop or livestock quantities that commensurate with their water allocation and in line with the local region production average.

Sewerage and Storm Water Networks

The failure over the past four decades to build major water infrastructure to harvest, divert, store transfer and distribute additional volumes of rainwater has seen the planning and development of schemes to recycle waters from both sewerage and stormwater networks, not only for agricultural and industrial use but also as a means to supplement potable water supplies.

Regionals do not deem these schemes as acceptable alternative to mitigate the governments' responsibility to provide the Australian population with abundant and affordable domestic water sourced from rain water. However, recycling of sewage and stormwater for agricultural and industrial use is encouraged.

Out Flows into Oceans

Regionals shall provide for the planning and development of sewage treatment systems that direct the treated outflow to suitable inland areas. Sewerage treatment systems shall maximize useful by-products including methane, urea and recycled water for agricultural or industrial use.

Regionals shall incentivize the home installation of three stage under sink garbage disposal units to direct food waste to the sewage network being directed to land fill.