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### HOPE E-news Bulletin 2021 #01 --- Special Edition - Critiquing Government and Industry Reports

The following items have been gathered from various e: newsletters received by HOPE in recent times; and/or prepared specifically by HOPE members and supporters. If you have any news to contribute, please forward to [office@hopeaustralia.org.au](mailto:office@hopeaustralia.org.au) . Deadline for articles is 15<sup>th</sup> day of the month.

#### Editorial

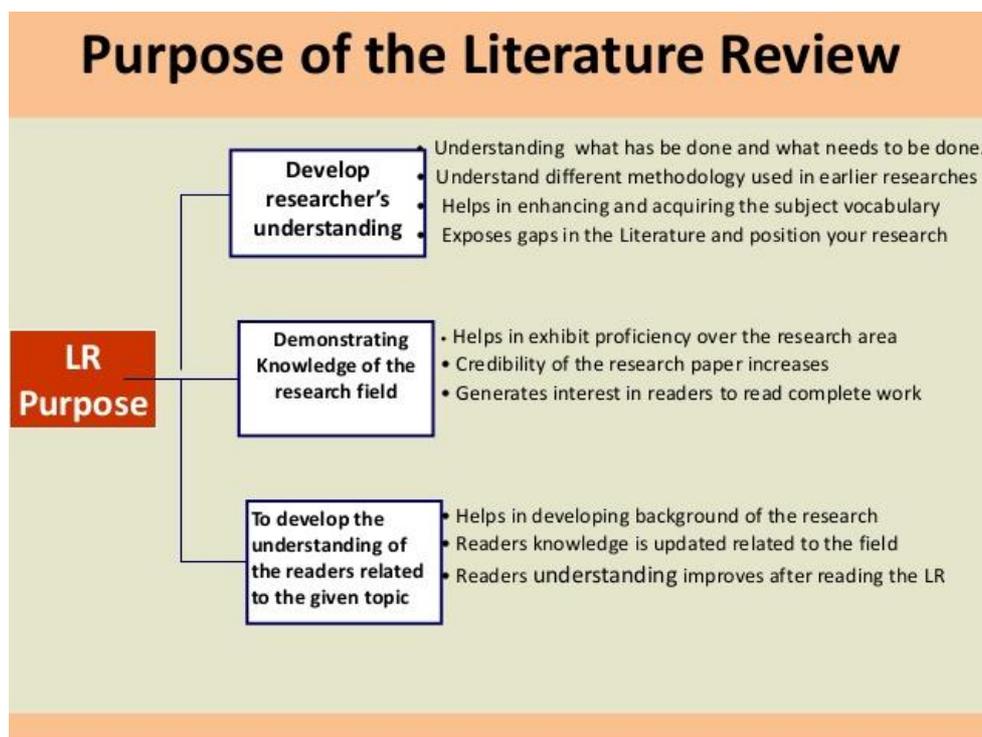
Welcome to the Special Edition of HOPE E-news.

As Australia continues to be assaulted by extreme weather events and natural disasters, there has never been a more relevant time to discuss threats to Australia's long-term environmental wellbeing. Climate change and sustainable resource management are global issues that we very much feel the local effects of here in Australia, with our States playing musical chairs as to which will be the next unfortunate enough to go up in flames or be submerged underwater.

This special edition critiques current efforts being made in Australia to address environmental issues, with our enthusiastic volunteer researchers covering topics from bushfire, climate change and water management planning to renewable energy and environmental legislation.

As you read through the following words, this researcher would like to issue the challenge of brainstorming ways in which we can make the complexities of these issues more digestible, and find simple, practical and actionable solutions that are accessible to all.

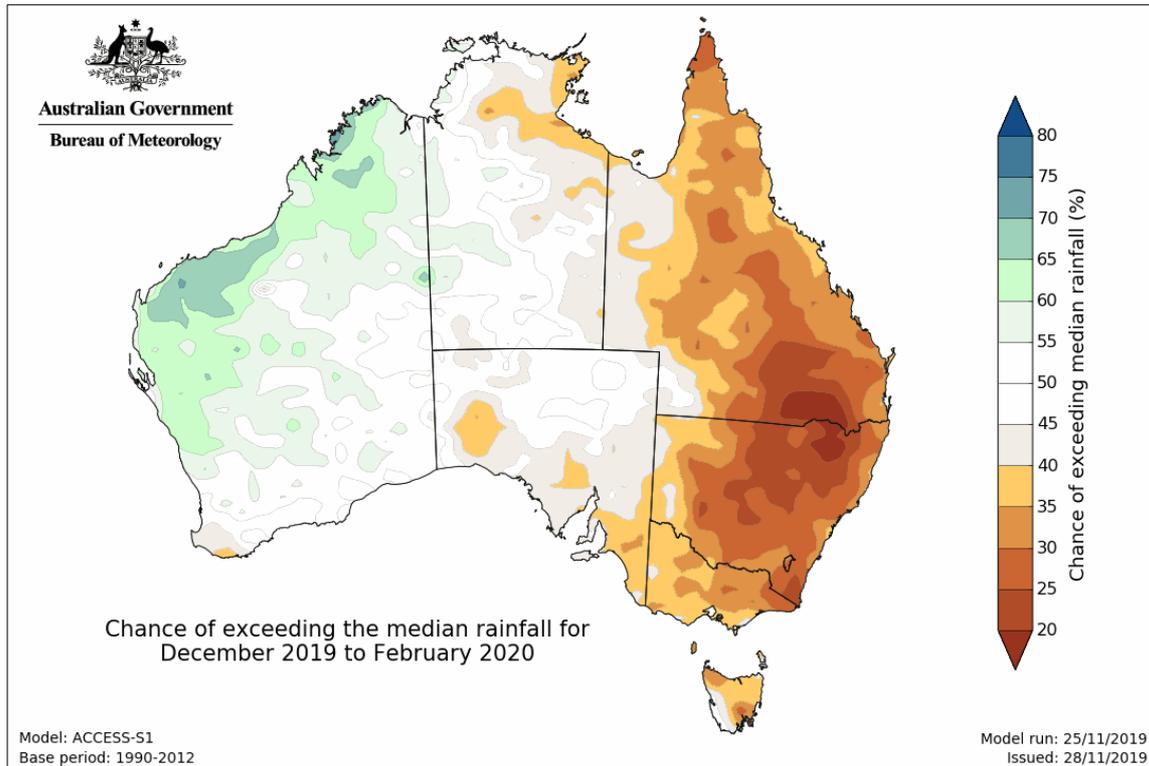
Amelia Carlson - HOPE Researcher Qld, Guest Newsletter Editor



## Collection of articles critiquing Government and Industry Reports

### Critique of State of the Climate 2020 Report

By Dan Bielich, B.Sc. – Climate Science, M.S. Env, completing B. Ren-Eng



This sixth biennial State of the Climate report draws on the latest climate research, encompassing observations, analyses and projections to describe year-to-year variability and longer-term changes in Australia's climate. The report is a synthesis of the science informing our understanding of climate in Australia and includes new information about Australia's climate of the past, present and future. The science informs a range of economic, environmental and social decision-making by governments, industries and communities. Observations, reconstructions and climate modelling paint a consistent picture of ongoing, long-term climate change interacting with underlying natural variability. Associated changes in weather and climate extremes—such as extreme heat, heavy rainfall and coastal inundation, fire weather and drought—have a large impact on the health and wellbeing of our communities and ecosystems (State of the Climate, 2020).

#### **Key Point Section**

The paper begins with a series of fast facts provided by the CSIRO and BOM that are backed by empirical data gathered over many decades. This section of the report provides a highlight reel of the state of the Australian climate system and shows the most important climate challenges that Australia is currently facing. The fact that Australia has had an average temperature increase of 1.4 degrees over the last few decades may sound insubstantial to a non-scientist. However, these changes are much more significant than what they seem. These temperature increases are the driving mechanisms of wide scale changes felt across the entire nation and even the world. These critical changes trigger significant domino effects across a range of environmental spheres that interact via a complex network of heat and pressure differences. This key point is fundamental to any climate paper, highlighting the driving changes that will likely onset climate disasters in the future.

By utilising advanced modelling software, BOM and CSIRO have been able to provide a hypothetical scenario of possibilities for climatic processes and disasters that may affect the Australian community over the coming years. Over the last few decades, climate modelling software and measuring equipment have been called out by the media as “poor quality” and “unreliable”. However, since the 1990s climatic and physical modelling software and hardware has developed significantly. Interestingly, what has not changed is the grim projection of our future with the current climatic trends that are being observed across the world.

## **Australia's Changing Climate Section**

In this section of the report, the author dissects each climatic variable, and explains how they have been affected by human activities over the past 50 years. The effects on the environment are complex and broad, making it difficult to cover all environmental impacts. It is important for the public to know the magnitude of environmental devastation that has already been and will continue to be caused by factors such as air temperature increases, sea-surface temperature changes and greenhouse gas emission concentrations. Each climatic variable that has been discussed throughout the paper gives a clear picture of the issues that we face, and shows that this challenge that has no simple solution. It requires not only a technical solution but a social solution of which we all play a critical role.

### **Human Psychology**

Humans are psychologically built to deal with issues that are occurring in the moment, triggering the fight or flight response. In the case of climate change the threat does not always seem immediate, until a drought or severe storm event hits, making it a difficult challenge to grasp as a species. Unfortunately, this means papers such as this frequently tend to get overlooked. However, as any who have lived through a difficult event can attest, our own experiences provide the most critical lessons in life. Studies have shown that societies that have been hit by large storm events, such as Hurricane Katrina in New Orleans, are significantly more likely to believe in and act on climate change than a community that has not suffered the consequences of climate change directly. On a yearly basis severe storms affect thousands of Australians, as does heavy rainfall, drought, tropical cyclones, bush fires, and other extreme climate events. This is likely a contributing factor as to why the social views on climate have changed over the last few decades.

To tie the bow at the end of the paper, so to speak, BOM and CSIRO return to projections of the future, to remind the reader that these are current issues, and will not be resolved without action. By relying on simulation models, they were able to provide a glimpse of the future. As we can see, climate change is a complex issue that must be addressed on several fronts. But ultimately, reducing global greenhouse gas emissions will lead to less warming and fewer impacts in the future (State of the Climate, 2020). Climate change affects the lives and livelihoods of all Australians. Australia needs to plan for and adapt to the changing nature of climate risk now and in the decades ahead.

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## **Critique on Australian Bushfire and Climate Plan**

*By Regina Kimble, HOPE Researcher (QLD)*

### **Australian Bushfire and Climate Plan**

In response to the unprecedented 2019-2020 bushfire season, the Climate Council and Emergency Leaders for Climate Action have released an Australian Bushfire and Climate Plan (ABCP), outlining the urgent recommendations that need to be implemented to prevent another devastating bushfire season. The ABCP is made up of comprehensive recommendations surrounding climate change, education, land care management, bushfire response and recovery. The ABCP was created by a representative selection of stakeholders, with an emphasis on Indigenous and local stakeholders.



Kimberley Land Council's Indigenous land management rangers.  
Image via KLC.org.au

Most of the recommendations are not new – increased hazard reduction and boosting firefighting capacity is advice firefighters and Indigenous peoples have been endorsing for years (Williamson et al., 2020). Notably, this plan has a substantial emphasis on Indigenous knowledge and participation in bushfire management, which would provide proven and tested methods to reducing bushfire hazards (Wright, 2020). Further, the ABCP outlines a number of immediate and feasible recommendations on how to increase bushfire response capacity and implement full-time land care management teams that would directly benefit the 2020-2021 bushfire season.

## Think Globally: Climate Change

The ABCP foremost and most urgent recommendation to addressing Australia's bushfires is tackling climate change and reducing greenhouse gas emissions. The logic behind why climate change and global warming would exacerbate bushfires is easy to follow: hotter temperatures, drier weather, more severe storms would lead to more destructive bushfires (Yu et al., 2020). It is known that climate change is induced by humans' increased production of carbon dioxide, and consequently the ABCP strongly recommends a reduction of fossil fuel use in Australia and a commitment to net zero emissions (Yu et al., 2020).

These recommendations will no doubt reduce carbon dioxide emissions and are necessary steps towards a more sustainable planet, however the climate change impacts that are creating more suitable bushfire conditions in Australia will not be fully resolved with these recommendations. Australia directly produces less than 1.3% of the world's carbon dioxide emissions, therefore global action towards reducing emissions is needed to have a significant impact on reducing climate impacts seen in Australia (IPCC, 2012). While Australia does need to do better with its emissions, this recommendation will not alleviate bushfire destruction as effectively as focusing on Indigenous land management. Although the ABCP did have a heavy emphasis on Indigenous involvement, it should have been their top recommendation as it is a direct-action Australia alone can take to manage bushfires. Involvement of Indigenous peoples in Australia's bushfire management will be the most urgent action Australia can take, with climate change recommendations taking a back seat as it hinges on global participation to have a significant impact on Australia's bushfires (United in Science, 2020).

## Act Locally: The Need for Arson Education

In addition, the ABCP fails to address the impact of arson on bushfires. From California to the remote bushlands in Australia, arsonists cause a significant number of bushfires and damage (Spencer, 2020). Educating local communities and tourists on the dangers of open flames and ignition sources should have been a priority recommendation in the plan. This would have positive direct impacts on the 2020-2021 bushfire season. In addition, it could reinforce the need for full-time land care management as those management teams should be controlling for and patrolling potential arson events. Acknowledging the role arsonists play would not take away from the significant influence climate change has on bushfires, and ignoring arsonists does not make the arsonist problem disappear. This major oversight on excluding arson-based recommendations is the main critique the ABCP should address in future plans.

In conclusion, the Australian Bushfire and Climate Plan (ABCP) is a comprehensive plan that outlines a number of achievable and practical recommendations that Australia can implement to reduce the destruction the next bushfire season would bring. However, the focus on climate change impacts instead of Indigenous participation, and the exclusion of arsonists show there are still several issues and measures Australia must address to successfully manage future bushfire seasons.

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## Critique on “The projects that can power Queensland to a zero-pollution future”

By Regina Kimble, HOPE Researcher (Qld)

### Queensland’s Road to Renewables

In response to Queensland’s target of supplying 50% of electricity through renewable energy by 2030, Green Energy Markets (GEM) is drafting a report that outlines how Queensland can achieve this target. Currently, Queensland is on track to supply 20% of electricity through renewable energy by the end of 2020, and while this is a good start, there is considerable progress that needs to be made to reach the 50% target (Queensland Government, 2020a). GEM has drafted a numbers-based report, pulling data from current and proposed renewable energy projects, to calculate what is needed to achieve the 50% target (GEM, 2020). GEM is a research and consultancy firm that specialises assisting companies on implementing or investing in renewable energy project.



Barcaldine Solar Farm. Image via Reneweconomy.

The report provides a quantitative analysis and pathway to achieving the 50% target. Based on current and proposed renewable energy projects, new battery technology and projected increased investments in renewables, Queensland has the capacity to achieve its 50% target (GEM, 2020). The report takes a comprehensive look at different renewable energy types and what is required to ensure there is sufficient baseload power, it quantitatively shows that consistent and sustainable power can be achieved.

While the report clearly outlines that Queensland has the capability to transition to renewables, the report hinges on the fact that investments in renewables will increase. Financial reports from 2019 show a decrease in renewable energy investments in Queensland (ABC, 2020). While the operating costs of renewables are lower than coal plants, renewable energy has substantial upfront costs that require large, initial investments (ABC, 2020). The decrease in investments in 2019 stems from absence of long-term government policy, logistical issues in transmission systems in north Queensland, and a new restriction on solar construction (ABC, 2020). Further, the Queensland government is still subsidizing fossil fuel companies, which do not pay any external costs that would make renewables more attractive to investors (Berrill, 2016). In addition, current building codes and standards on high-rises are not renewable energy friendly. Coupled with an increasing population and following electricity demand, the report fails to account for current market failures and demand (Berrill, 2016). These insights shed light on the fact that while Queensland has the capability (i.e., technology, land) to achieve the target, it lacks a strong foundation to secure the essential investors to start the journey towards the 50% target.

### Think Globally: Extreme Weather

In order to increase renewable energy supplies in Queensland, a significant amount of renewable energy plants, and consequently power, will have to be based in north and central Queensland (GEM, 2020). One issue the report fails to account for is the increasing extreme weather events regional Queensland will face due to the exacerbation of global climate change impacts (Queensland Government, 2020b). Renewable energy plants, such as solar and wind, have been found to be severely damaged by cyclones, strong winds and storms, and intense fires (Solaun & Cerda, 2019). All of these are weather events that will increase in the incoming years around the areas the GEM report places the proposed renewable energy plants in (Solaun & Cerda, 2019). These events may risk a cut in electricity supply, which can have detrimental impacts on the government’s and public’s view on the reliability of renewable energy.



Damaged solar panels at Oakey solar plant after strong winds. Image via -magazine-australia.com

The report does focus on diversifying power supply types and offers a range of construction locations across north and central Queensland, which would improve the resilience of the renewables supply grid (GEM. 2020). However, the report relies heavily on improved battery technology that does not exist, which would mean Queensland would have to compensate for this by constructing more renewable energy plants in these extreme weather zones (Scott, 2020). While the world is increasingly committed to reducing climate change impacts and emissions, extreme weather events will still take place and may significantly damage renewables in regional Queensland, potentially reigniting the reliance on coal power (Solaun & Cerda, 2019). Further analysis on which areas are most suitable in the long-term for stable renewable energy should be included in the GEM report.

### **Act Locally: Grid Connection Issues**

Another important factor that needs to be addressed to implement renewables in Queensland is connecting new renewable energy plants to the power grid. The report does briefly mention this barrier, as the proposed sites in regional Queensland are far from the highly populated areas (GEM, 2020). These regional sites have better conditions for harvesting renewable energy, but since they are far from populated areas, it will cost more money in the end to implement them (Parkinson, 2020). Current solar projects already have issues connecting to the power grid, detrimentally impacting their output (Parkinson, 2020; Vorrath, 2019). These barriers have been significantly contributing to reduced investment interest in renewable energy in Queensland as there is no reliable support or grid infrastructure for proposed, or even current, projects (Vorrath, 2019). It is estimated that over 10.3 trillion USD is needed within the next 30 years to implement the infrastructure required to transition Queensland towards renewable energy (Vorrath, 2019). If Queensland wants to continue on this path towards renewables, it needs to reduce these immense barriers around grid connectivity to secure investors.

In conclusion, the GEM report is a quantitative, comprehensive report that outlines the required construction needed to reach the 50% renewable energy target Queensland has set for 2030. However, the report appears to gloss over and oversimplify current barriers that are stopping Queensland from beginning the journey towards this target, namely the lack of government legislative support around renewables as well as the positioning of proposed renewable energy sites that are vulnerable to climate change impacts and that have current substantial technical issues with connecting to grid power.

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## **A call for a new generation of Australian Environmental laws**

*By Maria Hernandez, HOPE Researcher (WA)*

Australia's beautiful and unique natural environment is in an unsustainable state of decline. This has been demonstrated by the Australia State of the Environment Report 2016, which had identified persistent environmental problems such as a biodiversity loss, land degradation, extensive development along coastlines and cities, and climate change impacts<sup>1</sup>. More recently, the Australia's Environment Summary Report 2019<sup>2</sup> has also reported that the national Environmental Condition Score (ECS, based on Australia's key environmental indicators) was 0.8 out of 10 in 2019; the lowest score since at least 2000. This report has also stated that, in 2019, Australia's list of threatened species included a total of 1890 species, representing a 36% increase from 2000. Furthermore, a study published by leading Australian ecologists in 2019<sup>3</sup> has found that over 7.7 million hectares of potential habitats and communities were cleared between 2000 and 2017, contributing to the wildlife extinction crisis Australia is currently facing.

Since its enactment in 2000, the Environment Protection and Biodiversity Conservation Act 1999 (the EPBC Act) has been subjected to two independent statutory reviews: the first review completed in 2009 by Dr Allan Hawke AC<sup>4</sup> and the second, currently being finalised by Professor Graeme Samuel AC<sup>5</sup>. Both statutory reviews concur that the EPBC Act is complex and that it should be redrafted comprehensively or replaced by a new Act (or set of related Acts). Both independent reviews also assent that the environmental impact assessment and approvals regime under the EPBC Act is inefficient and should be streamlined to reduce duplication and inconsistencies. Furthermore, the interim report of this year's EPBC Act review indicates that the Act is ineffective, and it is not fit to address current or future environmental challenges. Fundamentally, this interim report proposes a reform package involving the development of a new set of legally enforceable National Environmental Standards, the creation of an independent compliance, monitoring, and enforcement regulator, the accreditation of State and Territory assessment and approval processes ('devolution'), and the centralisation of information and data collection.

Despite the second statutory review of the EPBC Act still being in progress with the final report not being due until the end of October this year (2020), the Federal Government has started to propose changes to national environmental laws. Its argument is that this would support Australia's economic recovery from the Covid-19 crisis without compromising the environment. Just recently, on August 27<sup>th</sup> (2020), the Environment Protection and Biodiversity Conservation Amendment (Streamlining Environmental Approvals) Bill 2020 (Cth) (EPBC Amendment Bill) was introduced to the Australian Parliament, with the purpose of facilitating devolution of approval powers to States and Territories (referred as 'single touch' environmental approvals) and improving the bilateral agreement process. However, as the EPBC Amendment Bill failed to include the creation of new National Environmental Standards and a strong independent compliance and enforcement regulator, environmental experts are concerned that it could instead weaken environmental protections. This EPBC Amendment Bill has been strongly criticised as it is almost identical to the 'one-stop-shop' legislation introduced by the Australian Government in 2014. Conservation groups do not support this 'devolution' regime, arguing that; 1) State and Territory environmental laws and enforcement process do not meet federal standards, 2) States and Territories may have conflict of interest in approving projects which are of financial benefit to them, and 3) States and Territories would need additional funding to be able to take over this job. Some even claim that the 'single touch' regime may further complicate rather than simplify the system<sup>6</sup>.

A similar approach has been taken by the Places You Love (PYL) Alliance, a network of leading environmental non-government organisations across Australia. In response to similar concerns about the complexity and ineffectiveness of the Australian environmental law system, PYL convened the Australian Panel of Experts in Environmental Law (APEEL), calling for a major overhaul of national environmental laws. As a result, APEEL released the blueprint for the next generation of Australian environmental law<sup>7</sup> in 2017, including 57 recommendations. With this reform proposal, APEEL was seeking to ensure a healthy and resilient environment for future generations.

Additionally, several Australian National Audit Office (ANAO) performance audits have been conducted to examine the operation of the EPBC Act since it came into action in 2000. The latest ANAO performance audit

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<sup>1</sup> The Australian Panel of Experts in Environmental Law. *Blueprint for the Next Generation of Australian Environmental Law*. August 2017.

<sup>2</sup> Australian National University. *Australia's Environment Summary Report 2019*.

<sup>3</sup> Ward MS, Simmonds JS, Reside AE, et al. *Lots of loss with little scrutiny: The attrition of habitat critical for threatened species in Australia*. Conservation Science and Practice. 2019. <https://doi.org/10.1111/csp2.117>

<sup>4</sup> Dr Allan Hawke AC. *Report of the Independent Review of the EPBC Act. Final Report*. October 2009.

<sup>5</sup> Professor Graeme Samuel AC. *Independent Review of the EPBC Act. Interim Report*. June 2020.

<sup>6</sup> Environmental Defenders Office. *EPBC Act reform: Are we about to fast track our way to weaker environmental standards and protections?* 7 Aug 2020.

<sup>7</sup> The Australian Panel of Experts in Environmental Law. *Blueprint for the Next Generation of Australian Environmental Law*. August 2017.

report<sup>1</sup> released in June this year (2020) has indicated that the administration of referrals, assessments and approvals under the EPBC Act is neither effective nor efficient. Likewise, according to this report, previous ANAO performance audits conducted in 2003, 2007, 2014, 2016, and 2017 have also reported deficiencies in compliance monitoring and enforcement arrangements.

Australian environmental laws should enable protection, conservation, management, and restoration of Australia's natural and cultural heritage in an effective and efficient manner. However, as clearly identified by the multiple audits and independent reviews conducted on the EPBC Act since its commencement in 2000, the Australian Government's central piece of environmental legislation is failing to deliver. A fundamental reform in the way the Australian environmental laws are written, applied, and enforced is necessary to stop this environmental crisis and work towards the protection and recovery of Australia's precious environment without compromising its economy.

<sup>1</sup> Auditor-General Report No.47 2019–20. *Referrals, Assessments and Approvals of Controlled Actions under the Environment Protection and Biodiversity Conservation Act 1999*. June 2020.

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## Critique of the Great Artesian Basin (GAB) Strategic Management Plan

By Dan Bielich, B.Sc. – Climate Science, M.S. Env, completing B. Ren-Eng



The Great Artesian Basin (GAB) Strategic Management Plan is a framework guide organised in collaboration by the state and federal governments of Australia, to guide the actions of said governments in regards to water use, and the economic, environmental, cultural and social outcomes of the GAB. The aim of this document is not to be utilised as a statutory document, but a collaborative management plan between users to achieve objectives and outcomes. The lifespan of this management plan is estimated to last 15 years. Metrics have been installed for every 5-year period that the strategy will be operating, to test the strategy's validity in its objectives and track its progress.

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## *Context:*

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The Plan seeks to deliver outcomes for the Basin through an adaptive, evidence-based risk management approach. This means accurate and timely information will be used to guide decisions of regulators, investors, water users and other interested parties. Governments will use the Plan to assist in the development of policies, management and investment plans that meet objectives for the Basin.

Investors, water users and other interested parties can use the Plan to guide decisions concerning their use and management of the Basin resources. In implementing the Plan, water users and other interested parties will play important roles in providing input and evidence to help ensure compatible Basin-wide responses to risks and development opportunities. The Plan provides for a coordinated governance structure drawing on the knowledge and expertise of all interested parties to develop robust Basin-wide perspectives that strengthen understanding and confidence in decisions about use of Basin water.

### **Why introduce a new plan?**

Success of previous plan:

Key achievements of the previous plan include:

- 750 bores have been capped, rehabilitated or decommissioned.
- 250GL of water is being saved each year.
- Water pressure in parts of the Basin has been restored.
- Health of naturally occurring springs has been maintained or improved.
- The profile of the Basin and understanding of its structure and dynamics has been raised among its users and community members.
- With this knowledge, respect of the Basin and the importance of its sustainable management has grown.
- Substantial improvements in policy, planning and management have also been achieved, including the development of state water management plans and policy support, changed community attitudes concerning the need for judicious use of Basin resources.

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## *Challenges of Prior Plan*

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An emerging concern in the GAB, reflected in comments made during public consultation on the draft Plan, relates to equity between water users and transparency relating to water use. As the composition of water users and patterns of use in the Basin continues to change, there are particular concerns relating to the quantity of water taken by extractive industries and their potential impact on water quality, including on stock and domestic water supplies. There is concern that water take for different industries is managed under different legislation within the same state and that not all take in the Basin is fully accounted for in a consistent manner. There is a desire for all water users to be accountable in order to contribute to maintaining the long-term sustainability of the Basin. The Plan addresses these concerns in a number of ways. Governments involved in GAB management (Basin governments) agree to implement measures aimed at minimising impacts from extractive industries on groundwater recharge and groundwater dependent ecosystems. Facilitating full accounting of water taken by all water users, including the resource extraction industry, is an objective of the Plan. Water entitlements should have nationally compatible characteristics, with conditions complied with by industries operating in multiple jurisdictions. There is a focus in the Plan on aligning Basin management more closely with nationally agreed strategies and frameworks, including the National Water Initiative. The Plan envisages that scientifically defensible limits relating to both quantity of water take and water quality will be established and adhered to. Specifically, measures are to be implemented so that features important to natural groundwater recharge are not unduly impacted.

### **Further Emerging Challenges**

As the demand for Basin resources increases and patterns of use change, there will be increasing competition between water users, and changes to the nature, magnitude and significance of impacts caused by water extraction. Emerging challenges may include:

- injection of gases
- injection of water (for future use or to maintain aquifer pressures)
- large resource developments
- unconventional gas extraction

These new and emerging issues may impact both water quantity and quality. To meet increasing demand, the use of new technologies to maximise the efficiency of Basin water use is encouraged to meet user demands in terms of quantity and quality.

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## *GREAT ARTESIAN BASIN PLAN SUMMARY*

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The primary aspects of the GAB are summarised here along with the hoped outcome:

### 1. **Coordinated Governance:**

Coordinated governance means the GAB jurisdictions of New South Wales, Queensland, South Australia, Northern Territory and the Australian Government working together to manage the resource on a whole-of-Basin approach in partnership with communities and industry partners. This partnership provides advice to the governments on the productive, environmental and other public benefit outcomes to be achieved in a mutually beneficial way within the Basin area. Basin-wide coordinated governance engages Basin governments, community and industry in implementation of the Strategic Management Plan, to:

- Collectively consider long term management of the Basin.
- Actively engage with community and industry on matters of importance and provide community and industry advice to Basin Ministers.
- Enable transparent public reporting.
- Enable evaluation of, and public reporting on, implementation of the Strategic Management Plan.

### 2. **A Healthy Resource**

A healthy resource means the Great Artesian Basin groundwater system is under artesian pressure, with water flows and quality that continue to support natural ecosystems and supply water for a wide range of human activities, including economic, social and cultural uses. It means a groundwater system in which water flows, artesian pressure, and water quality support groundwater-dependent ecosystems, and provide a supply of water that meets the needs of communities and industries. It means improved management of Basin groundwater recharge and discharge processes and the ecosystems/springs that are dependent on them. To address this, the Basin state and territory water resource plans:

- Identify access and extraction risks to Basin water resources.
- Set out scientifically defensible extraction limits and management measures that sustain the use of the resource, by 2033.
- Set out scientifically defensible water quality limits and extraction impact management measures that minimise impacts on the Basin resources, its users and dependent ecosystems. Authorised water users extract groundwater in accordance with limits.
- Specified in Basin governments' water resource management plans and under their licence or approval conditions, to minimise third party impacts.

Basin governments hope to implement the following outcomes:

- Water resource matters are considered as part of land use planning, linked to regional natural resource management plans and activities.
- Land use impacts are considered when undertaking water resource management and planning for the Basin groundwater system, especially around Basin springs and recharge areas.
- Risk-based, cost-effective measures are used to manage impacts on groundwater flows, artesian pressure and the quality of groundwater.
- Industry measures are put in place to minimise impacts from mining and other resource extraction on groundwater recharge and Basin groundwater-dependent ecosystems, including springs.
- Water resource management identifies and manages risks to Basin springs and other groundwater-dependent ecosystems, and on biodiversity and their environmental values.
- Where Basin aquifers are identified as having potential for mining and other resource extraction, Basin governments may put in place management plans for their long-term sustainable management. Landholders are encouraged and supported to adopt best management practice for managing important physical landscape features that support natural recharge and Basin springs.

### **3. Aboriginal and Torres Strait Islander Values, cultural heritage and other community values**

Those Aboriginal and Torres Strait Islander values, cultural heritage and other community values supported by Basin water and deemed to be important by Aboriginal and Torres Strait Islander people and other stakeholders are identified and considered as an integral part of the water planning and management process. Water is available to sustain Aboriginal and Torres Strait Islander values, cultural heritage and other identified community values that are dependent on the Basin groundwater system. Basin governments include provisions in water resource management plans to enable access to the groundwater required for sustaining:

- Aboriginal and Torres Strait Islander values and interests, which includes Basin springs.
- Cultural heritage values.
- Other identified community values.

Governments ensure that cultural knowledge is integral to governance, planning and implementation of Basin management. Aboriginal and Torres Strait Islander people have an effective voice in coordinated governance arrangements including through representation on stakeholder advisory committees within the Basin. Basin governments set out strategies to achieve Aboriginal and Torres Strait Islander values, cultural heritage and other community objectives that are dependent on Basin water resources.

### **4. Secured and Managed Access:**

Secure and manage access to groundwater for authorised water users and the environment. Public confidence that the management of groundwater access and extraction is in accordance with agreed statutory requirements. Regulatory frameworks facilitating innovative solutions and productive developments to ensure the Basin groundwater system is used in a way that optimises economic, social and environmental outcomes. Full accounting of water taken or injected by all water users.

Basin state and territory water resource management plans that specify:

- The process in which access to ground water is granted and how third-party impacts are managed.
- The characteristics of the groundwater resource, the water available for extraction and the conditions under which extractions can occur.
- Strategies to assess risks that could affect those characteristics and the allocation and extraction of groundwater.

In addition, it hopes to:

- Establish the rights and responsibilities associated with Basin state and territory authorisations to access and extract groundwater are clearly specified, understandable and enforceable.
- Enforce that government decisions that affect the extraction of groundwater are made in accordance with a transparent process and in consideration of Basin-wide perspectives.
- Introduce a coordinated governance arrangement, which enables Basin governments to work together to implement complementary authorisation/management frameworks, regulations and requirements across jurisdictional boundaries which achieves Basin wide outcomes, including pressure.
- Extract and manage groundwater, including water or gas storage, disposal and aquifer reinjection, is in accordance with rights and responsibilities specified in relevant authorisations.
- Ensure Basin governments recognise and foster access to water for Aboriginal and Torres Strait Islander people to achieve social and economic outcomes.
- Ensure Basin governments implement risk-based compliance and education programs.
- Ensure Basin governments identify, attribute and publicly report costs associated with Basin water resource planning and management.
- Allow authorised groundwater extraction and injection to be accounted for through applicable tracking and monitoring processes.

### **5. Judicious Use**

Judicious use is responsible, productive and efficient use of Basin water that minimises the impacts of extraction on groundwater flows and water pressures while meeting requirements for existing users, water-dependent ecosystems, and for development where appropriate. Basin water wastage minimised and social, economic and environmental values in the Basin enhanced in accordance with extraction limits.

Through planning, education, information, incentivising measures and regulatory tools, Basin governments and water users will manage Basin water resource extractions, in line with social, economic and environmental values, so that:

- Water wastage is minimised.

- Authorised water users are encouraged to implement water use practices that minimise the amount of groundwater extracted.
- The economic value of Basin water resources increases as a result of increased productivity from using Basin water resources within agreed extraction limits.
- Water resource planning and regulatory frameworks provide for effective, efficient and innovative management of groundwater access, extraction, injection and use that is responsive to future development opportunities.
- Water infrastructure owners and operators upgrade and maintain groundwater infrastructure to meet Basin state and territory standards and minimise water loss, including the capping and piping of bores and removal of bore drains consistent with the requirements of individual state and territory water resource plans.
- New and emerging risks to the Basin's water resources are assessed and managed under state and territory legislative tools. Coordinated governance arrangements assist in identifying and promoting practices and culture for judicious use and willing compliance among water users across the Basin.
- Basin governments develop mechanisms to allow transfer of water access rights within and between jurisdictions, where water systems are physically connected and water supply considerations will permit trading. Basin governments grant new authorisations to extract groundwater through processes that maximise the efficiency and productivity of water use.

## **6. Information, knowledge and understanding for management**

Information and knowledge generation ensures that accurate, timely and readily accessible information supports good management of the GAB. Baseline information that identifies how the hydrology, hydrogeology and environment interact in Basin water resources is sufficiently accurate and robust to support decision making processes. Understanding of changes that result from extraction of Basin water resources are developed in a timely manner that enables management intervention. The benefits that accrue from use of Basin water resources are understood by water users and the general public. The coordinated governance system enables collaborative working relationships between researchers, industry, water users and governments to improve the Basin-wide information and knowledge base by:

- Seeking out, evaluating and using the best available information to make evidence-based decisions.
- Enabling collection and consolidation of information held by governments, researchers, and industry and community interests.
- Facilitating improved data quality and consistency.
- Investing in the acquisition of a) baseline information on the hydrogeological function of the Basin groundwater system, including natural recharge and discharge processes, water flows, water balances and risks to those processes, and b) information on biodiversity and ecology of groundwater-fed systems, and risks to biota for all parts of the Basin.
- Identifying knowledge gaps and priorities for research and for development of models and management tools.
- Undertaking risk-based monitoring of the Basin groundwater system, including groundwater extraction, groundwater resource condition (artesian pressure, water quality, environmental values), and water infrastructure condition, including inter-aquifer leakage.
- Compiling social, economic and cultural heritage values information related to the use of groundwater.
- Understanding future patterns of development and projected water demand within the Basin.

## **7. Communicate and Educate**

Communicate and educate means that Basin-wide water resource management information, including information on social, cultural, economic and environmental values, will be publicly available, accessible and clearly understandable.

A centralised hub for Basin-wide information is established as part of the coordinated governance system to:

- Draw on expertise from governments, water users and other interested parties.
- Share information openly.
- Assist in identifying and remedying strategic information gaps.
- Ensure that Basin information is accessible, understandable, reliable, and usable for all levels of decision-making and enquiry, and appropriate to target audiences.
- Provide a community gateway to authoritative information products about Basin groundwater systems, and their values, health, management and use.

Basin governments publicly report information on management of Basin groundwater systems. A Basin-wide resource condition report is established based on an agreed monitoring strategy. It is communicated and updated 12 months prior to each five-year review of the Plan, to include 'dashboard' indicators of the current

state of Basin resources and management, and identification of emerging trends, risks, challenges and opportunities. The Basin-wide condition report will provide a source of information for reviewing state and territory basin monitoring programs.

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### *Implementation of the Plan Basin*

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Governments, water users and other interested parties have a joint responsibility to continue to improve management of the Basin to sustain important community values, continue to meet the needs of water users, and grow the benefits that accrue from Basin water use. The implementation of this Plan will assist governments with policy development and management, and support industries in their decision-making to achieve more judicious use of water. Basin governments have statutory responsibilities to provide adequate resources for Basin management, with national policy and water resource information support provided by the Australian Government. Achieving the objectives and desired outcomes of the Plan will require targeted investment by Basin governments and the Australian Government commensurate with the risks and threats facing future Basin management. Industry and other interest groups should also be encouraged to consider the GAB Strategic Management Plan 33 Plan when making investment decisions within the Basin. This will support active engagement of water users and other interests to enable implementation of the Plan through a Basin-wide approach. Local government and regional natural resource management groups provide an important source of local knowledge on social, economic and environmental matters and will be integral to implementing the Plan. A rolling five-year implementation plan will be developed, be publicly available and jointly managed by Basin governments in consultation with water users and other stakeholders, to:

- Meet national water management agreements and their respective legislative requirements.
  - Emphasise the critical role of whole-of-Basin management.
  - Continue to enable stakeholders to participate in Basin-wide policy and decision making.
  - Assist industries and other interested parties in making management and investment decisions.
  - Provide information that assists in meeting the Plan objectives and raising the profile of the Basin.
  - Apply the coordinated governance principle of the Plan to strengthen and complement state/territory and whole-of-Basin policy and management initiatives. Implementation plans will be guided by the principles, objectives and desired outcomes in the Strategic Management Plan and will include:
    - Actions to be taken by governments through water planning processes.
    - Joint actions to be delivered by multiple governments in partnership.
    - Activities to be delivered by governments working closely with industry, community groups and other stakeholders' timeframes within which those actions and activities will occur.
    - The commitments required by water users, Basin governments, Australian government, industries and other interests to make the implementation plans operational.
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