

Submission on the “Water Trigger” of the Environmental Protection and Biodiversity Conservation Act.

1. Introduction:

Since 2010 successive Queensland Government have been dealing with up to nine (9) proposals to establish new thermal coal mines in the Galilee Basin, which is situated directly to the west of the Bowen Basin coal mines. With the election of the Newman LNP Government in March 2012, the Queensland Government has been “fast tracking” the environmental assessment processes (EISs & SEISs) through the provisions of the State Development and Public Works Organisation Act 1971 and the Office of the Coordinator-General.

Since 2010 successive Queensland Governments have been dealing with approvals for Coal Seam Gas extractions in the Surat Basin in Queensland’s South West Queensland. The community’s concerns at the impacts of this industry on the ecological and social health of people as well as the long term impacts on Queensland’s water resources have been well articulated.

It is a well know that approximately 30% of Australia’s consumptive water needs are met by underground water resources. Wherever there are mines, there are impacts on the area’s groundwater resources as these mines intersect with the local aquifers and groundwater is extracted from these aquifers in mine dewatering operations. This submission will focus on the assessment and planning processes utilised by successive Queensland Governments in their dealings with the groundwater impacts of the proposed Galilee Basin mines and dealings with CSG operations in the Surat Basin which impact on the sustainability of the Great Artesian Basin (GAB).

2. The Need to Retain the EPBC “Water Trigger”:

a) The Galilee Basin example.

Since March 2012, the Coordinator-General has issued draft Environmental Approvals for four (4) proposed coal mines in the Galilee Basin, these being the GVK/Hancock Alpha Coal & Kevin’s Corner mines, Waratah Coal’s China First/Galilee Coal mine and Adani’s Carmichael mine. As these mine proposals are all considered to be “controlled actions” under the EPBC Act, the Federal Minister for the Environment has also been required to consider each proposal in respect to the “water trigger” for Coal Seam Gas and Large Coal mines amendments to the Act in 2012. To date the Federal Minister has given “conditional approval” to the Alpha Coal, Kevin’s Corner, Galilee Coal and Carmichael mining proposals. The Queensland Minister for Environment and Heritage Protection has recently approved the Environmental Authority for the GVK/Hancock Alpha Coal Mine.

In dealing with these mining proposals, the Queensland Government have not considered the cumulative impacts of these mines on the Galilee Basin’s groundwater resources. This is in spite of the Queensland Coordinator- General specifically acknowledging the need, in each of the Evaluation

Reports on the EISs/SEISs for all of the above mentioned mines for a Regional Groundwater model to be developed and a Regional Groundwater Monitoring and Reporting Program to be applied for “determining the capacity of aquifers and acceptable extraction rates” of the Region’s aquifers (Condition 2 (a)(v) on page 282 of the Coordinator-General’s Report on the Alpha Mine EIS – May 2012 states “contribute to development of basin wide groundwater model for determining the capacity of aquifers and acceptable extraction rates, including pro rata funding”). This Monitoring and Reporting Program includes “pro rata” funding contributions by the mine proponents. To date no action on this Program has been publicly announced by the Queensland Government.

Water and environmental planners consider a Regional Groundwater Model to be an essential tool to assist the Queensland Coordinator General to professionally and effectively assess these mining proposals. To date, no publicly apparent action has been taken by the Queensland Government on the development of a Regional Groundwater Model – but we still have the Coordinator-General assessing projects separately on their “single project” impacts and conditionally approving them.

Due to significant concerns as to the integrity of the Queensland Government’s assessment and approval processes for Coal Seam Gas and large coal mines in Queensland, the EPBC Act was amended in late 2012 to include the “water trigger” provisions. This amendment was welcomed by Queensland’s independent water planners and environmentalists as an appropriate “check and balance” on the operations of the Queensland Coordinator General. Queensland’s independent water planners and environmentalists considered the establishment of an Independent Expert Scientific Committee (IESC) to provide high integrity advice to both the Federal Minister of the Environment and the Queensland Government, to be a key and essential component of the EPBC “water trigger” provisions.

It is important to note that the IESC have raised common concerns on each of the mine proposals in the Galilee Basin with the Queensland Coordinator-General and the Federal Minister for the Environment. These concerns relate to:-

- The groundwater flow conceptualisation.
- The boundaries of groundwater hydrological models.
- The connectivity to the Rewan Formation (one of the GAB aquifers).
- The impacts of water extraction on GDEs.
- The cumulative impacts of groundwater extraction.
- The impacts of mine discharges to surface waters.

The Queensland Coordinator-General’s Reports on the Galilee Basin mine proposals have consistently acknowledged the concerns of the IESC, but have discounted them in granting the conditional environmental approvals for the proposed Galilee Basin mines. One could ask – are the professional qualifications of the Coordinator-General, his advisers and the mining companies’ consultants better than those of the eminent scientists of the IESC, and is it an informed decision by the Coordinator-General not to give due consideration to the IESC’s warnings?

The response by the Queensland Coordinator-General and the Federal Minister for the Environment to the IESC’s concerns is to just apply more conditions to the conditional approvals for

each project. It is contended that is not realistic to condition a potential impact without knowing (as much as possible) what the full extent of the impact is, that is why independent pre-mining modelling and assessment are essential. The magnitude of the cumulative impacts of the proposed Galilee Basin mines are potentially very significant and once the uncertainty on groundwater impacts becomes a threat to the viability or existence of other existing industries, it should be imperative to take into consideration ALL expert advice in the decision making process, not just SOME selected advice.

There is still a wide diversity of views on whether these proposed mines will impact on the Great Artesian Basin. The miner's consultants indicate there will be no impacts. The IESC of eminent scientists are not so sure that mine subsidence from the underground mines will not fracture the Rewan Formation and allow the drainage of GAB waters to the east. Due to the high risk of the Rewan Formation being fractured through underground mining - no development of these mines should occur until, at the very least, this matter is resolved. However, the response by the Queensland Government has been to apply a raft of conditions to attempt to mitigate any potential impacts.

It is very clear that the strength of any conditional approvals to protect the GAB is very dependent on the vigilance and diligence of the Queensland Department of Environment & Heritage Protection – the Department responsible for issuing the Environmental Authorities for mines in Queensland. An independent Queensland Auditor General's audit of the monitoring and compliance functions of the Queensland Department of Environment and Heritage Protection (DEHP) has found this department to be bordering on being incompetent. The report highlighted:

- *"While DEHP's planning processes have improved since 2011, it remains constrained by the quality of its own data, which are unreliable, inaccessible and often incapable of providing timely and quality information to inform decisions"*
- *The DEHP's risk assessment tool for evaluating Environmental Authorities for resource projects is not "fully effective" because it's not consistent or coordinated with other agencies.*
- *There are a large number of overdue annual returns that companies are supposed to make to report on their Environmental Authorities, thus hampering compliance: "While the number of outstanding annual returns reduced from 10 per cent of all Environmental Authorities in 2010 to five per cent in 2012, a consequence of holders not submitting annual returns is that valuable information to guide monitoring and compliance planning decisions is not available to the DEHP."*
- *The DEHP does not assess or audit annual returns routinely to determine the accuracy of the information provided*
- *The DEHP "does not do periodic or systematic risk assessments or inspections of those sites that have standard conditions applied or standard conditions with variations. It inspects such sites only if it receives a complaint or incident notification. It does not know whether the actual risk posed by the majority of these sites has changed from the original determination"*
- *The DEHP "does not report the number or percentage of its inspections that detected non-compliance and we found little evidence to demonstrate that the DEHP is effective in detecting non-compliance, other than in response to public complaints or industry reported incidents"*

The Queensland Government described the conclusions of the Auditor-General's Report as "emotive". There is no demonstrated reason to believe that the Queensland Government will be any more vigilant in exercising its responsibilities of compliance monitoring of the conditions applied by

the Coordinator-General in granting environmental approvals for the Galilee Basin mines and initiating compliance action against those mining companies who may not be doing the right thing.

In response to the Queensland Government's refusal to consider the cumulative impacts of these proposed mines on the Galilee Basin's groundwater resources, the Lock the Gate Alliance commissioned the preparation of a report on projected cumulative impacts. This report utilised publicly available data provided by the mine proponents to the Coordinator-General for five (5) mine proposals and projected the water use for the other four (4) mine proposals. The Report titled – "Draining the Lifeblood" was released on 23rd September, 2013. I was engaged by the Lock the Gate Alliance to be one of the joint authors of this Report.

The Draining the Lifeblood Report projected:-

- That over the life of all mines mine, dewatering operations were estimated to extract between 870 – 1354 GL of groundwater. Subsequent updated projections provided in the EPBC approval reports for Waratah's Galilee Coal and Adani's Carmichael projects, have increased the projected water extraction to between 1523 - 2007 GL of groundwater (3.0 – 4.0 Sydney Harbours) - if all 9 mines go ahead.
- In excess of 500 existing bores will be potentially impacted by the mine dewatering operations.
- A groundwater "cone of depression", some 30kms wide, over 100kms long and extending along a north/south strike may result from the dewatering operations.
- The drawdown level of bores is projected to be between 1 – 70 metres with some bores being totally dewatered.
- Some 39 properties (involving 168 land parcels) within the 9 proposed mining lease areas will potentially experience impacts to their groundwater supplies.
- There is potential for the Rewan Geological Formation to be compromised by the 14 proposed underground mines with a subsequent draining of water from the Great Artesian Basin (GAB). The Independent Expert Scientific Committee (IESC) established by the Commonwealth Government has also raised concerns about the potential impacts of these mines on the GAB.

The Queensland Government totally rejected this Report as being prepared by "alarmist and extremist greenies" and has proceeded with the assessment and approval of as many mines as possible, without access to a Regional hydrological groundwater model. It has become apparent from statements issued by the Queensland Government that their intent is to mine the thermal coal in the Galilee Basin, regardless of the impacts, and that the State Departments of Environment and Heritage Protection and Natural Resources and Mines are expected to manage the impacts as best as they can through conditions on each of the mine approvals. It is for this reason that the EPBC "water trigger" provisions must be retained and indeed strengthened to provide for better management of the Nation's groundwater resources before they are irrevocably damaged or destroyed.

b) The Alpha Mine Land Court Decision:

In response to the draft Environmental Authority for the proposed Alpha Coal mine, a number of parties lodged an appeal to the Land Court on the potential grant of this Environmental Authority. The Galilee Basin landholders who appealed to the Land Court wanted to ensure that their water supplies were protected from the impacts of the proposed Alpha Mine. Hence they took the very

costly and time consuming step (during the throes of a severe drought) of taking their concerns to the Land Court – a forum they considered to be independent and impartial.

During the Alpha Coal Mine case, the Court heard conflicting evidence from technical experts on the complexity of the groundwater systems and the repercussions of the Alpha mine's dewatering operations on groundwater aquifers. The Court specifically noted the disagreement between the parties on the extent of predicted drawdown of water levels and the impacts of the mines on operations on groundwater aquifers and permanent springs.

On 8th April 2014, the Land Court handed down its decision in respect to the Alpha appeal. Although the Court deemed that GVK/ Hancock had used sufficient and high quality data to predict the impacts of their mines within the mine lease areas, the Court found that neither the mining company, nor the Queensland Government had properly investigated or considered the impact that the groundwater extracted by the mine, would have on other groundwater users, especially the local graziers.

The Court's decision made it clear that a "more cautious approach" to the approval of new mines in the Galilee Basin is needed, to protect groundwater resources for all water users. The Court therefore recommended to the Minister for Mines, that the Mining Lease either be rejected, or be granted only after GVK /Hancock met strict conditions, including obtaining licences to take water from the aquifers and the negotiation of "make good agreements" with impacted landholders before any mining commences.

Issues that emerged from the Alpha Coal Land Court case included:

- The Alpha Coal case demonstrated that the modelling of cumulative impacts of mining for the two(2) GVK/Hancock mines, one adjacent to the other, could be wrong and that more properties may be affected by the mine dewatering operations.
- The Terms of Reference for the Alpha Coal mine environmental assessment required GVK/Hancock to provide a cumulative groundwater hydrology model for the then four (4) proposed mines (now more), however in the Land Court's proceedings it emerged that GVK/Hancock had complained to the Queensland Department of Environment and Resource Management (DERM) (the regulator) and that DERM had advised GVK/Hancock "NOT TO BOTHER" about this requirement. This is another clear indication of the Queensland Government not wishing to consider the cumulative impacts of these proposed mines on the area's groundwater aquifers.
- The decision of the Land Court clearly demonstrated that there were unresolved issues in the EIS groundwater predictions of the impacts of the GVK/Hancock mines and that the Queensland Government had failed in its duty of care in protecting the security of water supplies for Queenslanders as well as those landholders who were resident in the Galilee Basin before the miners arrived.

The Land Court's recommendations were handed down on the 8th April, 2014, via a court hearing. A written copy of its decision was sent to all involved parties. The Queensland Government had until the 9th May, 2014 to either accept or refuse the Court's recommendation. There was no such

response from the Queensland Government - however a decision to approve the Alpha Coal Mine's Environmental Authority was made by the Minister for Environment and Heritage Protection in August, 2014.

In spite of the Land Court finding in favour of the landholders, the Queensland Minister for the Environment and Heritage Protection ignored the Court's recommendations and has signed off on the draft Alpha Coal Mine Environmental Authority. One would have expected that the Minister would have acted upon the Court's finding and had asked GVK/Hancock to offer Make Good Agreements to more landholders in the Basin. It is apparent that the Queensland Minister did not consider the Court's recommendations in regard to the wellbeing of the grazing sector or the overall sustainability of the water resources of the Basin.

Queenslanders might have expected, that the Land Court's recommendations in the Alpha case would have prompted the Government to consider groundwater impacts more carefully when approving major mining projects, and to ensure that approval conditions protected the water resources for all users. In response, the Queensland government's approach has been to conditionally approve the Draft Environmental Authority for an even bigger mine (Adani's Carmichael Mine) and pass legislation to grant miners greater access to groundwater, in one of the driest continents on our planet.

In progressing the WROLA 2014 legislation the then Queensland Minister for Mines (the Honourable Andrew Cripps, MP) claimed in the media that the Land Court's decision on a legal challenge to GVK Hancock's Alpha Coal Mine, supported his proposed Water Act amendments to grant miners a "statutory right to take groundwater" (Source - Letter in Longreach Leader – 29 August, 2014). This explanation by a Queensland Government Minister is just a further demonstration of the total arrogance and disrespect shown to the Galilee Basin landholders by the Queensland Government.

c) The Great Artesian Basin Example.

The Queensland Government are currently in the process of renewing the Great Artesian Basin Water Resource Plan. As part of this process the Department of Natural Resources and Mines have issued a Statement of Proposals (SOP) and called for public and stakeholder submissions on this SOP.

It is noteworthy that the current GAB WRP states, **the granting of a water licence to take water in the plan area must be consistent with the provisions to protect the flow of water to springs and baseflows to watercourses.**

However, there is strong evidence to show that the current GAB WRP spring protection rules are not adequately protecting GAB fed springs. The predicted impacts of petroleum operations on the GAB springs vents and springs complexes in the Surat Cumulative Management Area(CMA) is one such area that there is evidence of insufficient spring protection – reference Surat UWIR 2012. The Queensland Government's Underground Water Impact Report (UWIR) outlines that 71 springs complexes comprising of 330 individual springs vents have been identified in the Surat CMA. There are also 43 "watercourse springs" contributing to the baseflows of watercourses in the Surat CMA.

The predicted maximum impacts in the source aquifers of these springs is 1.3m with 5 spring sites predicted to be impacted > 0.2m in the long term. The Surat UWIR outlines that petroleum tenure holders are required to assess mitigation options at these 5 sites and report these outcomes to the Queensland Government. However, it is also noted that the Surat UWIR is silent on the potential impacts of mining operations on GAB fed springs.

Furthermore, in regard to GAB fed springs, Adani's Carmichael Mine in the Galilee Basin is predicted to have significant impacts on the local GAB springs and the baseflow of the Carmichael River.

The Doongmabulla and Mellaluka Springs complexes are predicted to experience significant drawdowns with the entire complexes, ceasing to flow and drying up. These springs support a large range of flora and fauna, some listed as threatened and vulnerable under EPBC & Nature Conservation Acts. They also have the highest conservation ranking under the GAB Springs National Recovery Plan. Another predicted outcome of the Adani Mine is the GAB fed baseflows in the Carmichael River are expected to reduce by 1000 cumecs/day – a 33% reduction of predevelopment flows.

The predicted GAB spring impacts of Adani's Carmichael Mine are quite alarming and will have a significant effect on the local ecology and ecological health of that part of the Galilee Basin. While it is understood that Adani will be required to do more work to identify all of the water sources for these springs and will also be required to implement a monitoring and reporting program on the Carmichael River riparian impacts, the issue still remains that the mine has received approval to proceed without full knowledge of or strategies in place to manage these impacts

While the Queensland Government has stated in the GAB WRP SOP - it intends to protect the flows to GAB springs complexes – all indications are that this will not be enforced if the springs get in the way of a State Treasury royalty cheque. It is for this reason that the EPBC "water trigger" provisions need to be retained to maintain a close eye on the actions of the Queensland Government.

The Adani Mine is just one example of the current policy settings of the Queensland Government and its lack of real "political will" for the protection of environmental and cultural assets. The New Hope Acland Stage III mine is another example of the impacts of mining operations on landholder's water supplies and ecological assets. It is the view of community organisations that the protection of GAB-fed springs means exactly that and if any springs are compromised by mining or petroleum & gas projects, then the proponent MUST be required to provide for offset arrangements, such as a significant financial contribution to the GABSI Program or other like programs.

Where listed threatened species are concerned, it is a general community view that "offsets fail to protect those species identified under threat from the activity because *like cannot be replaced by like*". Extinction is not a reversible process; activities that lead to it are not only unacceptable but also completely undermine the State's and Australia's environmental protection laws and Australia's commitments under the Convention on Biological Diversity.

The Queensland Government has projected that there could be up to 40,000 CSG wells constructed in the Surat Basin's CSG footprint. The Surat CMA Underground Water Report (2012) indicates an average predicted water extraction by petroleum tenure holders in the order of 95 – 98,000ML/annum. The petroleum industry predictions are 75,000ML/annum. Notwithstanding the differences in estimates of the volume of groundwater extracted each year, the extraction of between 75,000 & 98,000ML/annum from the Walloon and Hutton Sandstone aquifers (which are a connected part of the GAB) will have a significant impact on the long term sustainability of the GAB. While the Queensland Office of Groundwater Impact Assessment (OGIA) has developed hydrological modelling capacity to assess the impacts of groundwater extraction in the Surat CMA – it is very questionable whether the long term impacts of the potential level of extraction on the GAB have been adequately considered by the Queensland Government. A number of community organisations contend that this level of water extraction will have long term impacts on the future sustainability of

the GAB and robust hydrological modelling of these impacts MUST be undertaken in the development of the new GAB WRP.

The Queensland Government is actively promoting the expansion of unconventional gas exploration (deep gas, tight gas and shale gas) in Inland Queensland – in particular in the Eromanga and Cooper Basins within the Lake Eyre Basin. The fracking process for unconventional gas utilises large volumes of water. Each shale gas well may have up to 16 shafts and each shaft may be fracked up to 20 times with 2 – 4 ML of water used for each fracking (Reference – Shine Lawyers – personal communication).

Each time an unconventional gas well is developed, it could potentially use between 640 and 1,280ML of GAB water. The scale of water required to develop the unconventional gas industry in the Eromanga and Cooper Basins will potentially be huge as thousands of wells will be needed to extract the gas of just one deposit.

It is contended that the high potential for over-use of water from the GAB by an expansion of the unconventional gas industry in Inland Queensland, is an issue that needs to be addressed within the an expanded scope for the EPBC “water trigger” provisions. The trigger should be expanded to include both shale and tight gas.

d) Recent Legislative Changes in Queensland:

In a further blow to the sustainable management of Queensland’s water resources, the then Newman LNP Government passed the Water Reform and Other Legislative Amendments Act 2014 (WROLA Act) in November 2014. Amongst other things, the WROLA Act changed the purpose of Queensland’s Water Act, removed any reference to Ecologically Sustainable Development principles in managing Queensland’s water resources and also removed the requirement for miners to obtain water licences to take or interfere with water during dewatering operations. The WROLA grants miners “a statutory right to take associated groundwater”. Through these legislative amendments, landholders lost their right to object and appeal to the Land Court to groundwater being extracted from under their land. Fortunately, many of the provisions of the WROLA Act have not been proclaimed and they are currently on hold while the Palaszczuk ALP Government considers what its position is on making further amendments to the Act.

To counter landholder’s anger towards miners being given “a statutory right to take associated groundwater”, the Queensland Government also amended the Water Act to include “statutory make good obligations” (MGOs) for those landholders who may be affected by a miner exercising their “statutory right to take associated water” . History has shown that existing “make good provisions”, that already apply to coal seam gas and some mining operations, are in many cases totally ineffective. Legal and technical arguments over whether a gas well or mine has impacted a landholder’s water bore, lengthy delays in resolving these disputes and high costs to landholders for legal and technical support in fighting the resources sector, have generated a high level of dissatisfaction over the effectiveness of MGOs. The use of “statutory make good obligations” to address landholder’ complaints or concerns over the impacts of a mining operation on the long term health of their water supply aquifers is not an acceptable strategy for sustainably managing Queensland’s underground water resources.

e) Failure to Apply Ecologically Sustainable Development Principles:

In acknowledgement of the experiences of the Murray Darling Basin, where it has taken many years to develop a collective and collaborative plan to address over-allocation and overuse of the water resource for consumptive purposes, the National Water Commission (when it was in existence) urged

all State and Territory jurisdictions to take a “cautious approach” in determining the amount of water taken out of the surface and groundwater systems for consumptive purposes. The paucity of science on the ecological assets, processes and water requirements as well as limitations on the understanding of the sustainable level of take of water resources in the Galilee Basin, indicate that a cautious approach is very desirable. However, it is clearly apparent that the Queensland Government has decided to set aside the “precautionary principle” and take a more cavalier approach to the future management of the State’s water resources, including those in the Galilee Basin.

There is a community expectation that the Queensland Government will apply the principles of Ecologically Sustainable Development in assessment of development projects. The concept of **Ecologically Sustainable Development (ESD)** can be achieved partially through the use of the [“precautionary principle”](#), that is Ecological Sustainable Development and the precautionary principle are directly connected. Cole (2005) outlines that the precautionary principle in the context of environmental protection, is essentially a tool for the management of scientific risk. It is a fundamental component of the concept of Ecologically Sustainable Development (ESD) and has been defined in Principle 15 of the *Rio Declaration (1992)*. It states:

“Where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation”.

This highlights that sound water policy must be underpinned by good science and not guided by the wishes of powerful vested interests.

The principle of [“intergenerational equity”](#); that is, the present generations should ensure that the health, biodiversity and productivity of the current ecosystems are maintained for the benefit of future generations, is also an important consideration for achieving ESD. In order for ESD to be achieved through the conservation of biological diversity and ecological integrity, Cole indicates that environmental features should be more heavily weighted in the evaluation of their value to society.

The removal of the ESD principle from the Queensland *Water Act 2000* and the progressing of environmental approvals for new coal mines in Queensland’s Galilee Basin without due consideration of the cumulative impacts of these mines on the region’s groundwater resources, is further evidence of the need for a “neutral broker” to be in place to protect the Nation’s water resources from political stupidity.

f) International Assessments of Groundwater Resources:

A recent satellite-based analysis by the NASA has found that the world is depleting its groundwater — the water stored unground in soil and aquifers — at an unprecedented rate. A new Nature Climate Change piece, [“The global groundwater crisis”](#), by Dr James Famiglietti, a leading hydrologist at NASA, warns that “most of the major aquifers in the world’s arid and semi-arid zones, that is, in the dry parts of the world that rely most heavily on groundwater, are experiencing rapid rates of groundwater depletion.” The groundwater at some of the world’s largest aquifers — in the U.S.A’s High Plains, California’s Central Valley, China, India, and elsewhere — is being pumped out “at far greater rates than it can be naturally replenished.”

James Famiglietti indicates that the most worrisome fact is: “nearly all of these groundwater aquifers underlie the world’s great agricultural regions and are primarily responsible for their high productivity.” And this is doubly concerning in our age of unrestricted carbon pollution because it is precisely these semiarid regions that are projected to see drops in precipitation and/or soil moisture,

which will sharply boost the chances of [civilization-threatening megadroughts](#) and [Dust-Bowlification](#).

As these increasingly drought-prone global bread-baskets lose their easily accessible ground-water too, we end up with a death spiral: “Moreover, because the natural human response to drought is to pump more groundwater, continued groundwater depletion will very likely accelerate mid-latitude drying, a problem that will be exacerbated by significant population growth in the same regions.”

So how has the USA’s space agency been able to study what happens underground? The answer is that NASA’s Gravity Recovery and Climate Experiment (GRACE) satellite mission can track the earth’s mass over space and time — and large changes in the amount of water stored underground cause an observable change in mass. Certainly, the combined threat of mega-drought and groundwater depletion in the U.S. breadbaskets should be cause for concern and action by itself. Dr. Famiglietti outlined that outside of the USA, NASA has observed aquifer declines in “the North China Plain, Australia’s Canning Basin, the Northwest Sahara Aquifer System, the Guarani Aquifer in South America ... and the aquifers beneath north-western India and the Middle East.”

Dr Famiglietti says that groundwater “acts as the key strategic reserve in times of drought, in particular during prolonged events,” such as we’re seeing in the West, Brazil, and Australia: **Like money in the bank, groundwater sustains societies through the lean times of little incoming rain and snow.** Hence, without a sustainable groundwater reserve, global water security is at far greater risk than is currently recognized. In spite of this data the Queensland Government is approving mining projects that threaten the groundwater security of water users in the Galilee Basin. (Sourced from – article by Joe Romm – October 31, 2014)

It is quite apparent that the Queensland Government has no idea of what the “sustainable level of extraction” of groundwater from the Galilee Basin is, nor has it shown any indication that it cares about this matter. The focus of the Queensland Government is on the development of the Galilee Basin coal mines as quickly as possible – irrespective of the long term environmental, social and economic cost. This underpins the need in the National interest to retain the EPBC “water trigger” to protect Queensland’s groundwater resources from inappropriate development.

3. What Changes Need to be Made to the EPBC “Water Trigger”:

It is apparent in dealing with the Galilee Basin mine proposals that in many cases, the application of the EPBC’s “water trigger” provisions has not resulted in adequate protection for Queensland’s water resources. Apart from retaining the “water trigger” provisions, it is important that they are improved and strengthened.

Areas for improvement include:

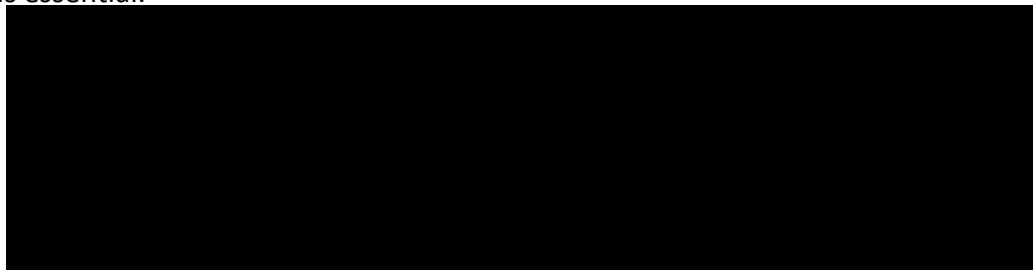
- There needs to be a greater recognition by policy makers that the robust and consistent management of water resources in geographic Regions such as the Murray/Darling Basin, the Great Artesian Basin, the Lake Eyre Basin and other like geographical areas, needs to be undertaken in the National Interest. The

retention of the EPBC “water trigger” with an expanded focus is an appropriate mechanism to deliver this.

- A much greater focus on the monitoring of compliance with “conditions” attached to EPBC approvals. It is pointless granting an approval with a “huge raft of conditions” if the proponent’s compliance with these conditions is not being monitored and appropriate action taken for non-compliance.
- The consideration of the “cumulative impacts” of a CSG (or gas related operation) or a Mine operation on a Region’s groundwater resources, is an essential component of the assessment process of “controlled action” proposals.
- There should be clear boundaries and thresholds, such as exclusion zones for important water resources like the GAB and drinking water catchments, as well as mandatory standards for matters like set-backs, monitoring, water quality and access to cultural water.
- It is recommended that the IESC or some other appropriate body be tasked with undertaking a review of State and Territory legislation as well as statutory assessment and planning arrangements for the management of CSG & mining impacts on water resources, and whether those measures are fit for purpose.
- It is recommended that the EPBC “water trigger” provisions be expanded to include all unconventional gas mining, shale and tight gas, as well as CSG, along with any other related fossil fuel developments, such as shale oil and underground coal gasification.
- There should be more weight given by the Minister to the advice of the IESC and the IESC should have the statutory capacity to apply binding guidelines and standards – such as enforcing ANZECC water quality guidelines for surface water discharges. Unfortunately the IESC advice is often ignored and it shouldn’t be. There is a clearly demonstrated need for the IESC having statutory powers to set enforceable standards.
- The EPBC “water trigger” should adopt the “key objectives” of the National Water Initiative to deliver:
 - *effective water planning: transparent and statutory-based water planning that deals with key issues such as the natural variability of water systems, major water interception activities, the interaction between surface water and groundwater systems, and the provision of water to achieve specific environmental outcomes.*

- *clear, nationally compatible and secure water access entitlements: providing more confidence for those investing in the water industry through more secure water entitlements; better and more compatible registry arrangements; better monitoring, reporting and accounting; and improved public access to information.*
 - *conjunctive management of surface water and groundwater resources: so that the connectivity between the two is recognised, and connected systems are managed in an integrated manner. And*
 - *resolution of over-allocation and overuse: returning over-allocated systems to sustainable levels of extraction as quickly as possible*
- It is essential that the potential water impacts of a CSG (plus all associated gas operations) or a mine operation are dealt with in collaboration with other environmental impacts and are not dealt with separately. This avoids the divide and rule approach of the Resources sector.

It is also quite apparent that it would be totally inappropriate for the Federal Minister for the Environment to delegate his approval powers to the Queensland State Government under the EPBC Act 1999. The potential impacts of such action on the future security and sustainability of Queensland's water resources are far too high to contemplate such action. The Queensland Government has clearly demonstrated that it cannot be trusted to do the right thing by the State's water resources and hence the retention of the EPBC's "checks and balance" is essential.



Tom Crothers – was the General Manager for Water Allocation and Planning in the Queensland Department of Environment and Resource Management from 2006 - 2011. He retired from the Queensland Public Service in 2011 and is now a Director of Stellar Advisory Services – a consultancy business that specialises in rural water matters.

29th January, 2016.