



## Queensland Murray-Darling Committee Inc. Submission on the Environmental Protection and Biodiversity Conservation Amendment (Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Project) Bill 2012

19 April 2012

### Submission to:

Committee Secretary  
Senate Standing Committees on Environment and Communications  
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### Submitting organisation:

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This submission is presented by the acting Chief Executive Officer, Julia Telford, on behalf of the Queensland Murray-Darling Committee Inc. (QMDC). QMDC is a regional natural resource management (NRM) group that supports communities in the Queensland Murray-Darling Basin (QMDB) to sustainably manage their natural resources.

### 1.0 Background

QMDC has made submissions and deputations to the Australian Government seeking improvement to legislation, policies, and planning to both, prevent or manage coal seam gas (CSG) and coal mining impacts in the QMDB. These submissions and deputations have raised issues integral to the implementation of the Regional NRM Plan, and the protection of national and regional water resources, for example:

- **The Environmental Protection and Biodiversity Conservation Amendment (Protecting Australia's Water Resources) Bill 2011**
- **Temporary State Planning Policy 2/11 Planning for stronger, more resilient floodplains - September 2011**



Funded by:





- **The Guideline for Underground Water Impact Reports and Final Reports**
- **Climate Change: Adaptation for Queensland Issues Paper**
- **The Inquiry into management of the Murray Darling Basin – impact of mining coal seam gas**
- **Feedback on the Queensland Murray Darling Authority’s Position paper on localism**
- **The *Guide to the proposed Basin Plan 2010***
- **Water and Other Legislation Amendment (WOLA) 2010 Bill**
- **Water and Other Legislation Amendment (WOLA) 2010 Exposure Draft Bill**
- **Development of Sustainable Diversion Limits for the Murray-Darling Basin Issues Paper November 2009**
- **The Basin Plan: A concept statement July 2009**
- **Other related issues such as water use efficiency, the EPBC Act and Environmental Authority conditions; flood recovery; Great Artesian Basin and groundwater contamination.**

QMDC’s internal policy, *Policy for the Queensland Murray-Darling Basin - Mining and energy industry impacts on natural resources in the Queensland Murray-Darling Revised Final Draft 2011* (the QMDC Mining and Energy policy) provides a framework for QMDC’s submission on the *Environmental Protection and Biodiversity Conservation Amendment (Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Project) Bill 2012* (the Bill). The policy was drafted by QMDC in consultation with the communities, organisations and stakeholders QMDC is working with in the region. Its purpose is twofold:

- to address the impacts of the mining and energy industry on the QMDB’s natural resources; and
- to provide a framework for best practice and policy decision-making, risk management and responses to the specific and cumulative impacts of the industry on the QMDB’s natural resources.

QMDC has made numerous submissions to relevant government agencies on draft TOR, EIS, EA applications and proposed CSG water management policies and procedures seeking the protection of natural resource assets and the development of policy and legislation that is informed by local and regional NRM knowledge and best available science. These natural assets are identified by the Regional NRM Plan as being at risk to the impacts caused by mining activities.

QMDC is actively working with DERM and the mining and energy industry, and has been doing so for the last four years, to reach agreement on actions needed to improve operational procedures and policy.

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QMDC's overall aim is that mining activities and associated infrastructure will avoid adverse impacts whether site specific or cumulative on surface water, aquatic ecosystems, groundwater, springs and groundwater dependent ecosystems.

QMDC believes that best practice water management requires the Bill to be implemented as part of a coordinated federal and state approach to water legislation and the control of the CSG and coal mining industries. Managing impacts on water supply bores and springs caused by the extraction of groundwater is one aspect, allocating water licenses to petroleum tenure holders only when and if environmental, social, economic and cultural values can be upheld should be another, as should assessing a development against well considered threshold limits and cumulative impacts on local, regional and national water resources. Without this coordinated approach the Bill risks compounding the issues associated with the CSG and coal mining industries.

QMDC in past submissions to both the Australian and Queensland State Governments voiced its support for the relocation and expansion of the existing regulatory framework for managing the groundwater impacts of the petroleum industry from the *Petroleum Act 1923* and *Petroleum & Gas (Production and Safety) Act 2004* (Petroleum legislation) into the *Water Act 2000* (Water Act).

QMDC however still believes mechanisms by which the current water legislation attempts to deliver on the commitment in the LNG Blueprint to protect groundwater resources are not adequate both at a federal and state level.

QMDC has consistently argued that a petroleum tenure holder's as of right to take underground water as part of their authorised petroleum activities in accordance with the Petroleum legislation is inherently flawed because that right has no limit placed on it. The tenet that water is consequential to the extraction of petroleum or gas allows for unsustainable practices that should not be perpetuated in light of this region's current water resource plans including, for example, Great Artesian Basin (GAB) water resource plans (WRP). Any use or extraction of groundwater must be managed to not only protect bore owners and natural spring ecosystems which are comparatively vulnerable in these circumstances but also to protect the connectivity of groundwater aquifers to surface water flows within QMDB, and the GAB.

GAB water allocations (including the Walloons), for example, have been determined as part of the GAB WRP 2006. Results of modelling presented by CSG companies have indicated that the removal of water from the coal seams will have no measurable effect on the GAB productive capacity. It is suggested that this is not a safe assumption on the grounds that:

- Modelling presumes initial and ongoing integrity of all aquifers and aquacludes.
- Time frames for impacts may be longer than those presented in model outputs – namely decades to centuries rather than the years to decades described in economic, production and impact assessments presented in public forums. Even if impacts are likely to be over extended periods, local and regional communities and the wider public deserve to know what the likely impacts are so they can assess the merits of ongoing development; and either provide or withdraw their social licence for CSG companies to operate in their communities.

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## 2.0 General comments

QMDC in general supports the intent of the Bill.

The Bill with further refinement could serve to strengthen existing federal and state government water legislation and planning and help to define those environmental, social, cultural and economic values that need to be upheld in order to provide for the needs of current and future generations.

Increasing the powers of the Australian Government to be well informed on how to protect significant national water resources at a strategic level rather than by a case by case project level will provide at a national and regional level greater certainty with regards to NRM and sustainable use of resources. It will also illustrate to regional communities a commitment by the Australian Government to protect nationally significant natural resource assets.

QMDC supports the Bill's recognition that it is crucial an Independent Expert Scientific Committee be established in order to inform the Australian Government on the current and future impacts of CSG and coal mining developments on water resources. QMDC believes greater attention needs to be given to the impacts of the mining industry on both surface and groundwater resources. QMDC also argues that the Australian Government must take a much stronger position on what it deems as a significant impact on water resources, namely the interrelation of impacts felt at a local and regional landscape scale and why and how that equates to a national impact.

The above statement however is conditional, namely that QMDC believes the Committee will only be effective in its role if it is given recommendatory powers and is adequately resourced to perform its functions. In QMDC's opinion this means the remuneration for full time scientists and other Committee members as discussed below in **paragraph 3.0**.

QMDC asserts peer reviewed scientific research is urgently needed to gain better knowledge and intelligence on the site specific and cumulative impacts caused by the mining industry on local, regional and national water resources. There is in our opinion major gaps in the science informing the Australian Government's decisions on CSG and coal mining developments.

On this basis QMDC supports the establishment of an Independent Scientific Committee in order that the Minister obtains independent advice which provides recommendations on:

- Best practice responses to and controlling provisions for the specific impacts of CSG and coal mining operations and activities;
- Best practice responses to the cumulative impacts of the CSG and coal mining industry;
- Alignment with Regional NRM Plans and other relevant regional policies and plans;
- The CSG and coal mining industry clear guidance on how it must primarily avoid impacts or risks on national water resources and ecosystems; and
- Long term effective management or mitigation strategies for national water resources and ecosystems.

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### 3.0 Aboriginal values

QMDC asserts the Bill needs to incorporate Aboriginal interests and expertise in the Committee's membership. QMDC has raised in previous submissions to the Australian and State governments the need to incorporate cultural aspirations for national and regional water resources. The integrity of the Committee requires the Australian Government to ensure cultural identity and heritage is respected and honoured.

The Bill and the Committee in order to avoid a tokenistic approach to Aboriginal interests must articulate an informed position on: the traditional and contemporary connection the Aboriginal people have with the rivers, wetlands, springs and other water sources; the impact of colonisation on those connections; and the roles and responsibilities Aboriginal communities have in relation to waterways and resources and the physical and spiritual health and wellbeing of their communities and the ecosystems they rely on, today and in the future.

Listed below are some Australian Government initiatives relating to Aboriginal interests in water and wetland systems that have been provided in the QMDB:

- Administrative support for the *Regional Caring for Country Plan* development
- Administrative support for the Regional Aboriginal Advisory Group through Caring For our Country (CfoC)
- The establishment of an Aboriginal Rangers Program and its ongoing support (Working on Country)
- Aboriginal Rangers participation in the QMDC community water quality and river health monitoring (CfoC funded) program
- Aboriginal Rangers participation in the QMDC Carp management pilot projects
- Aboriginal Peoples' representation on the Narran Fish Passage (CfoC) Project

QMDC believes that the Bill can build on these and other similar initiatives to enable Aboriginal knowledge to be represented within the Committee. A real commitment by the Australian Government will build the Committee's capacity to provide culturally informed independent scientific advice.

The Australian Government's commitment to Aboriginal interests in national water resources can be demonstrated by its willingness to facilitate opportunities for Aboriginal Communities and Traditional Owners to be involved in bioregional assessment processes and integrated aquatic ecosystem management planning and action.

### 4.0 Functions of the Committee

QMDC supports the Bill's intention to ensure that the Australian Government decisions on CSG and coal mining developments are based on independent and best available science. It is QMDC's expectation that the recommendations given will rely on a range of information and sources, for example, Aquatic Conservation Assessment (ACA) data, water monitoring, regional water quality guidelines, environmental and cultural values and impact assessments on communities and their social and economic well-being etc.

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QMDC recognises that the Australian Government has yet to acquire adequate information of this type and that it should be sought as a priority. Without this part of the picture a high level of confidence in decision outcomes is unlikely. The functions of the Committee therefore need to align with the range of information, data and research needed to assure the integrity of the Committee's recommendations.

QMDC supports the need for bioregional assessments and scientific expertise which takes into account local or regional scale ecological impacts. QMDC believes the development of a threshold limit approach in the functions of the Committee would provide greater clarity and certainty for these assessment because thresholds limits would help to define those natural water resource assets identified as being both nationally and regionally at risk to the impacts caused by activities and infrastructure associated with all industry, commercial business and domestic water resource use.

Setting threshold limits for water resources must be based on local and regional data and research. These limits based on environmental values and natural resource asset protection values will help the Committee to identify whether a new development or existing industries or businesses can operate without causing unacceptable impacts on those assets within the defined threshold limits. It will then be able to define and provide for: "no go" zones; clear and predetermined standard environmental practices acceptable under the Bill; and efficient water management administrative processes.

This will mean that activities where the impacts are known to exceed the trigger threshold limits and cause decline for example, for environmental flows, stock and domestic or irrigation supply bores, and which will impact on surface and groundwater quality, quantity and pressures, for example, in the QMDB and GAB, will not be permitted.

Threshold limits should also consider pollutant concentrations and discharge volumes and be set so that unacceptable pollutant load risks are not permitted for both individual site and cumulative impacts of all industry and commercial businesses on aquifers.

QMDC asserts that the Committee needs to be wary of the modelling predictions presented by CSG companies indicating that the removal of water from the coal seams will generally have no significant effect on the quantity or quality of water in overlying aquifers. The initial integrity and homogeneity of geological structures should be increasingly better informed by on-going drilling information. It is important that this information is reviewed regularly from a system integrity risk angle as well as from economic/production perspectives.

QMDC proposes that the methodology to measure cumulative impact by the Committee should provide regional bodies and the communities they represent or service the opportunity to demonstrate leadership in sustainable natural resource management processes. It is essential the methodology used to assess cumulative impacts sits within a legislative framework that clearly articulates the cumulative upper and lower limits for changes to natural resource asset condition and function in defined zones and timeframes to protect the integrity, health and value of the asset, and productive capacity, of those zones. Exceeding such limits would not be permitted under any circumstance, and would be an offence to do so.

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QMDC argues that although adaptive management can play a positive role in bioregional assessments and addressing cumulative impacts and subsequent environmental management, the methodology must be correctly and appropriately applied.

Adaptive management must not be used as a substitute for committing to specific mitigation measures in order to cover a situation where a CSG or coal mining company is not sure how to mitigate a negative environmental impact, but commits to finding the technology or science in the future, if a problem arises. Additionally, it must not be used to attempt to reduce uncertainty with respect to likely significant adverse environmental effects.

Accordingly, if it is uncertain whether a significant adverse environmental effect from a development will occur, adaptive management cannot be asserted to, if there is a significant impact, so the proponent will adapt to deal with it. As well, it cannot be used to attempt to reduce uncertainty regarding proposed mitigation measures nor be used as to “offset” to the precautionary principle. The precautionary principle requires that when faced with uncertainty regulators should act in precautionary manner. Adaptive management and the precautionary principle play distinct roles.

“Uncertainty” in the context of the Committee’s functions relates to the understanding that no matter how much scientific evidence and other information to conclude, for example, that a mitigation technique will successfully mitigate adverse effects, there are unknowns owing to the complexities of ecosystems and our inability to completely predict future events. These unknowns could prove that our predictions about mitigation success were incorrect and therefore the best advice should be to adopt the precautionary principle and not proceed with the development.

With the predicted 40,000 holes to be drilled in Queensland, 7,500 production wells alone in the QMDB for the Surat Gas Project (Refer: Arrow’s EIS for the Surat Gas Project Volume 1, Chapter 5; Section 5.2.1 Production Wells; p 6) it is urgent that the cumulative impacts and risks to groundwater quantity associated with aquifer and aquaclude integrity being compromised by drilling, fracking and repatriation activities are quantified. This type of information needs to be accounted for in modelling and reporting on aquifers and national water sources.

In areas where the controversial fracking process is used, there is serious and unquantified risk of groundwater being contaminated, either by fracking fluids, by saline associated water contaminated with the chemicals naturally present in the coal seam entering a freshwater aquifer, and / or by the gas itself. Fracking presents as one of those “unknowns” or areas of “uncertainty” where QMDC believes the precautionary principle should be applied and fracking not permitted.

By identifying not only risks but also thresholds or proximity to thresholds that influence ecosystem vulnerability provides the Australian Government greater opportunities to make better decisions. QMDC urges the Australian Government to promote resilience-based decision making processes by requiring the Committee as part of its functions to define a set of principles to assist with "building resilience and sustainability" which consolidate the precautionary principle, adaptive management, and local knowledge-based management practices approaches.

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## 5.0 Public consultation process

QMDC asserts that community engagement, disclosure of information and public consultation must meet community expectations for a more enduring and direct role in the planning, decision-making and implementation of natural resource policies and activities as they relate to CSG and coal mining developments.

The Bill does not state its position with regards to a public consultation process. QMDC argues legislation still needs improving to ensure timely and adequate notification of proposed developments, particularly to individual landholders, local governments and communities where the development and associated developments have the potential to impact on the planning and resourcing of supporting infrastructure, services and land use e.g. farming, industrial and residential zoning, waste management, sewerage management, roads, infrastructure, services (health, police, schools), airports, and emergency services.

QMDC submits that public engagement that is timely, meaningful and relevant and conducted appropriately for each stakeholder will *encourage and facilitate active public consultation*. QMDC believes this should include public notification and consultation on the representation of the Committee and any reports, research relied upon by the Committee when offering advice to the Minister.

Additionally any Ministerial decisions in accordance with the Bill need to also be made available for public scrutiny.

Resourcing regional Advisory Committees to advise the Committee on proposed developments and their impacts would advance the public consultation process. In QMDC's opinion these regional Committees should be appointed by the region's communities to represent key regional stakeholders including local landholders.

## 6.0 Terminology used in the Bill

6.1 QMDC believes the Bill needs to clearly define:

- 6.1.1 How a "significant impact" will be measured;
- 6.1.2 Scientific terms it uses to describe the significant impacts it is trying to prevent or manage. These include geological, hydro-geological terms e.g. hydraulic balance as per 6.2.below; and hydrological volumes;
- 6.1.3 What is meant by "other developments". It is not clear whether this refers to all developments from all types of industry or just developments related to CSG or coal mining. Consequentially the Bill is also silent on how cumulative impacts and regionally relevant threshold limits will be assessed.

6.2 QMDC asserts the power of the Committee should be extended to a recommendatory power rather than just an advisory one and the term "advice" when referring to the functions of the Committee should be changed to "recommendations".

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- 6.3 QMDC believes the word “large” where used to define coal mining development needs to be deleted. QMDC asserts there is no need to differentiate between a “small” or “large” coal mining activity because of the normal operations of all coal mines and their likely impacts on water resources locally, regionally and therefore QMDC would assert - nationally.

## 7.0 Discretionary powers of the Minister

Clause 131AB, allows the Minister the discretion to obtain advice from the Committee based on the Minister’s belief that the taking of the action:

- (i) is likely to have a significant impact on water resources; and
- (ii) may have an adverse impact on a matter protected by a provision of Part 3.

QMDC argues that in order to provide certainty discretionary powers should not be afforded to the Minister. QMDC has studied enough EISs and Environmental Authorities (EA) to know that all proposed CSG and coal mining activities or development in the QMDB are likely to have a significant impact on water resources in the region and therefore may have an adverse impact on matters in the region provided for under Part 3. CSG and coal companies have openly acknowledged this in their documentation supporting EISs and EA applications. QMDC therefore strongly urges the discretionary powers afforded to the Minister to involve the Committee to be removed.

## 8.0 Recommended changes

QMDC recommends:

- 8.1 **That the Committee is given recommendatory powers and is adequately resourced to perform its functions.**
- 8.2 **That the overarching aim of the recommendations of the Committee is that CSG and coal mining activities and associated infrastructure will primarily avoid adverse impacts whether site specific or cumulative on surface water, aquatic ecosystems, groundwater, springs and groundwater dependent ecosystems.**
- 8.3 **That the Bill must be implemented as part of a coordinated federal and state approach to water legislation and it be written in to the Bill how the Bill must be taken into account when States are applying their own State water legislation.**
- 8.4 **That Aboriginal interests and knowledge be represented in the membership of the Committee.**
- 8.5 **That the functions of the Committee be extended to consider how the *Regional Caring for Country Plan* and other key Aboriginal planning instruments and or cultural aspirations, strategies and actions can be incorporated into the recommendations given to the Minister.**

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- 8.6 That the Committee identify a methodology or assessment framework which explicitly describes triggers, at-risk communities, feedback mechanisms, restoration pathways and develops process-specific indicators that enable the Australian Government and proponents to identify whether a development poses unacceptable threats to critical threshold limits in which case a development should not proceed at first instance or should stop if already licensed to operate.**
- 8.7 That the Committee be required to provide recommendations on regionally relevant threshold limits as part of the functions of the Committee.**
- 8.8 That the Bill include a function of the Committee to provide recommendations on how to protect Australia's water resources through a national water meter system and thereby keep a record on water resources through a national accounting system for the extraction and measurement of CSG water and water used for coal mining including water as a waste product or as a beneficial use.**

An underlying water resource issue is that there is in law one practice for farmers and another for mining companies. QMDC has consistently argued that all water that is extracted from the GAB and QMDB should be measured. Additionally there does not appear to be a total water balance and total salt (pollutants) balance approach to management of water from CSG and coal mining activities within Australia. If such an approach has been attempted details have not been disclosed for public consideration. There are very real implications with regard to an increase in salt additions to basin streams, for example, especially in relation to QMDB salinity targets, environmental watering plans and Sustainable Diversion Limits in the event that dilution flows are required.

- 8.9 That there be public notification and consultation on the representation of the Committee and any reports, research relied upon by the Committee.**
- 8.10 That all Ministerial decisions on whether a development will proceed or not and what controlling provisions are required need to be made available for public scrutiny.**
- 8.11 That the Australian Government resource regional Advisory Committees to advise the Committee on proposed developments and their impacts and that these regional Committees are appointed by the region's communities to represent key regional stakeholders including local landholders.**
- 8.12 That key definitions and terminology used in the amendment be defined within a Schedule to the Act to clarify their meaning, for example, "significant impact" and "other developments".**



- 8.13 That key scientific and technical terms if used such as “hydraulic balance” be explained and included in the Schedule recommended in 8.12 above, for example:

***Hydraulic balance of a water resource***

- **A water resource is:**
  - a) the whole or any part of a river, lake, aquifer or other place where water occurs naturally on or below the surface of the ground, whether permanently, seasonally or during unusually wet seasons; or
  - b) any recharge zone or system for such a place.
- ***Hydraulic balance* refers to the current approximation of equilibrium between replenishment of a water resource and access or use of the water resource for human or environmental benefit:**
  - a) Human benefit includes licenced water use activities as well as stock and domestic, recreational, cultural and aesthetic benefits from a water resource.
  - b) Environmental benefits include maintenance of aquatic, terrestrial and groundwater dependant ecosystems and associated species with consideration to be given to: frequency of water access or inundation, persistence of waterholes or alluvial water levels, and, connectivity between different water stores within or between different water resources. Environmental benefit can also include the role played by the water in maintaining the structural integrity of the geological layer hosting the water resource.
  - c) Human and environmental benefits should be considered over short, medium and long time frames and in particular should consider cumulative impacts for at least a century after the likely completion of mining activity.



## 8.14 That a definition for cumulative impacts be included, for example:

For this Act, the term is taken to mean the combined impact of mining exploration and operations and all associated infrastructure (onsite and offsite) on Australia's water resources over time:

- i. Spatial extent impacts* – those which occur over an area e.g. wetland and riparian vegetation impacted and the immediate and cumulative effect on riparian function in the catchment.
- ii. Spatial intensity impacts* – when a location is impacted on by the activities of multiple sites e.g. where the extraction of coal seam gas by several CSG/coal mine sites contributes to a reduction of hydraulic pressure in particular areas.
- iii. Simple temporal impacts* have a specific time of commencement and a measured form over time e.g. the amount of riparian land rehabilitated over time as a reflection of the stage of development of the mine life and of cumulative mining industry impacts on Ramsar listed wetlands or in catchment areas.
- iv. Offset temporal impacts* occur when multiple simple temporal impacts are superimposed upon one-another over time e.g. materials moving through rivers.
- v. Linked triggered impacts* are those that occur when one impact, either by its occurrence or by reaching a threshold level, triggers another impact that would not otherwise have occurred. The second impact is the triggered impact.

QMDC recommends a broad definition of cumulative impacts that includes the successive, incremental and combined impacts of an activity on community, environment and the economy. QMDC asserts that owing to the complex nature of cumulative impacts, the Bill must provide a clear direction on how cumulative impacts should be defined and measured. A simple typology used in the belownamed 2008 study and *Cumulative Impacts A good practice guide for the Australian coal mining industry* that distinguishes between spatial, temporal and linked impacts recognises that there is no one way in which impacts are cumulative and that a more differentiated approach is needed for both the measurement and management of such impacts (*SEE Assessing the cumulative impacts of mining on regional communities: an exploratory study of coal mining in the Muswellbrook area of NSW* (2008) at pp. xvi, xvii for discussion on definitional issues; and *Cumulative Impacts A good practice guide for the Australian coal mining industry* by Franks et al.).



- 8.15 That the term “large” to define coal mining development be deleted.
- 8.16 That the term ‘advice’ be changed to “recommendations” where referring to the powers of the Committee.
- 8.17 That the discretionary powers afforded to the Minister to involve the Committee be removed and that clause 131AB be amended to read:

***Minister must obtain recommendations from Independent Expert Scientific Committee on Coal Seam Gas and Coal Mining Development***

***(1) This section applies if:***

***(a) the taking of an action, for the purposes of a controlling provision, involves:***

- (i) coal seam gas development; or***
- (ii) coal mining development; and***

***(b) that the taking of the action:***

- (i) is likely to have a significant impact on water resources; and***
- (ii) may have an adverse impact on a matter protected by a provision of Part 3.***

***(2) Before the Minister decides whether or not to approve, for the purposes of the controlling provision, the taking of the action, the Minister must obtain the recommendations of the Independent Expert Scientific Committee on Coal Seam Gas and Coal Mining Development.***