

Revised final draft for consultation. October 2011

POLICY FOR THE QUEENSLAND MURRAY-DARLING BASIN 2011



MINING AND ENERGY INDUSTRY IMPACTS ON NATURAL RESOURCES IN THE QUEENSLAND MURRAY-DARLING BASIN



QUEENSLAND
MURRAY-
DARLING
COMMITTEE

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Date	Version
05/03/2009	Preliminary draft: First round of discussions with the QMDC Executive Committee. Direction given to fully develop first draft.
02/04/2009	First draft: Presented to QMDC Executive Committee at St George. Adopted for consultation with modifications.
03/04/2009	First draft: Presented to QMDC Members Meeting at St George.
14/04/2009	First draft with modifications: Consultation with key organisations.
03/08/2009	Second draft: Modifications from QMDC to QMDB regional focus/targets by incorporating CA and SWNRM, NRM Plan targets.
19/08/2009	Third draft: Edits
05/10/2009	Third draft: Edits Regional Local Government consultation meeting
13/10/2009	Third draft: Edits Industry Group consultation meeting
15/10/2009	Fourth draft: Finalisation of edits and preparation for Executive Committee
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26/11/2009	Final draft: QMDC Executive Committee Land and Soils Policy supported
03/12/2009	Final draft: Presented to QMDC Executive Committee at Goondiwindi. For final consultation and stakeholder support.
02/10–06/11	Draft elements tested with various audiences at local, regional and state forums
03/09/2011	Revised final draft: Presented to QMDC Executive Committee and Members for final consultation and stakeholder support



1.0 Purpose of the policy

This policy document has been prepared by the Queensland Murray-Darling Committee Inc. (QMDC). Its purpose is twofold:

- to address the impacts of the mining and energy industry on the Queensland Murray-Darling Basin'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 mining and energy industry on the Queensland Murray-Darling Basin's natural resources.

Community members and representative organisations within the Queensland Murray-Darling Basin (QMDB) were invited to provide direction and input into the region's response to the impacts of mining and energy industry activities. A register of this input and consultation process is detailed in Appendix 1.

2.0 Support for the policy

Community members and representative organisations within the Queensland Murray-Darling Basin are invited to indicate their support for this policy document.

3.0 Background

The QMDB is a major location of energy projects (renewable, coal, oil, natural gas, condensate, liquefied petroleum gas and coal seam gas). Within the Queensland Murray-Darling Basin energy reserves are significant in the Surat Basin and underlying Bowen Basin.

Development of these energy reserves involves the extraction of groundwater from aquifers including the Great Artesian Basin, clearance of vegetation, disturbance of good quality agricultural soils, building associated infrastructure, coping with increased population, placement of infrastructure in floodplains, discharges of pollution to waterways and to the air, and the mobilisation of large volumes of salts.

Development of the Surat and Bowen basin energy reserves is currently and will in the future impose considerable local and cumulative impacts on the natural resource assets in the Queensland Murray-Darling Basin.

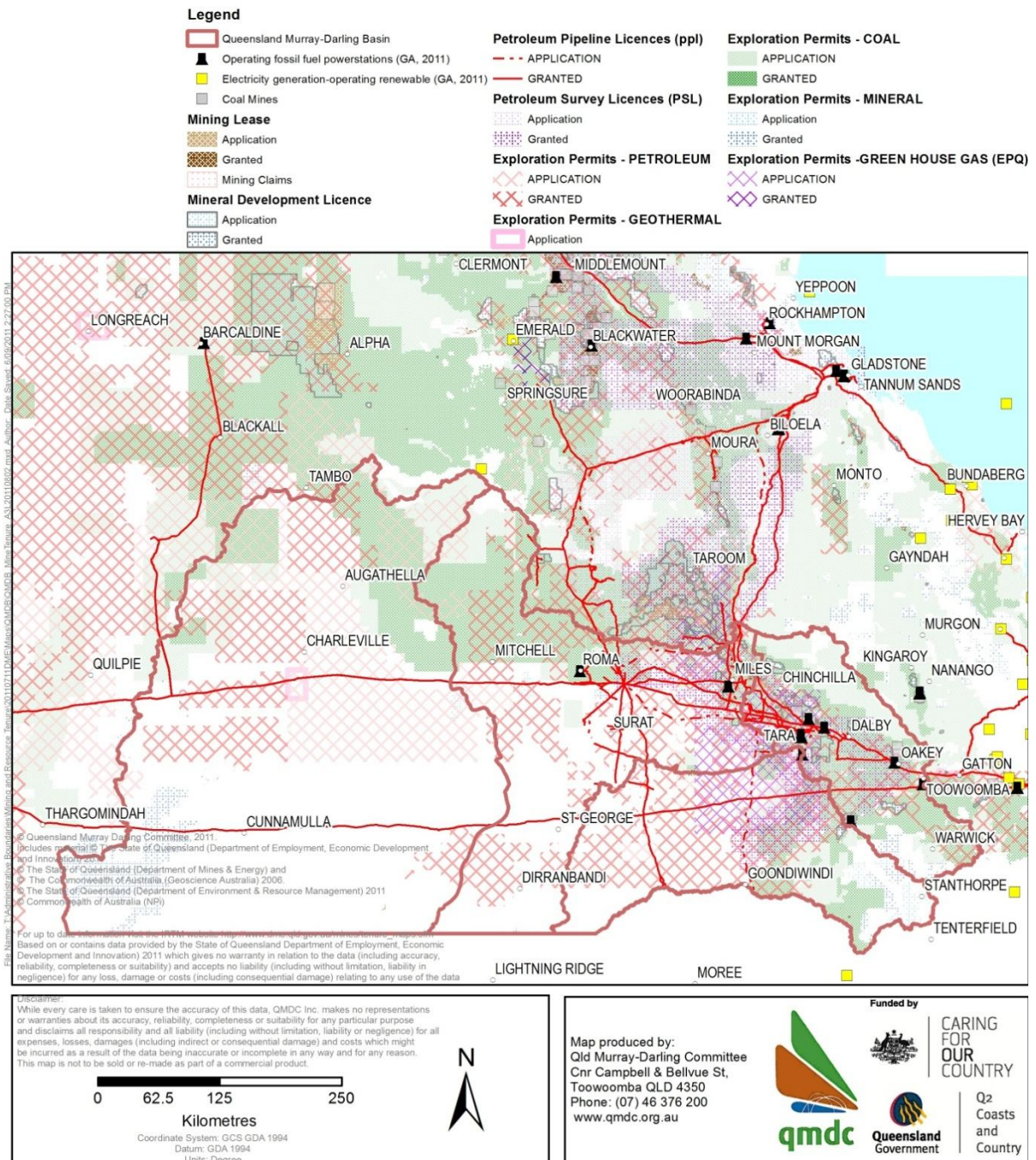


Figure 1. Extent of mining leases, exploration permits and energy infrastructure (July 2011).

QMDC is supportive of the need for the mining and energy industry and recognises that the potential for economic and social benefits to the region and state is on the basis that the mining and energy industry must primarily avoid, effectively manage or mitigate impacts on the region’s natural resources and environment.

Sustainable social and economic benefits are reliant on development in the Queensland Murray-Darling Basin which advances and supports a regional economy. There are many facets of this region’s economy and social well-being that rely on a healthy natural environment including agriculture, tourism and natural amenity for quality of life.



4.0 Policy context

This detailed policy position and framework for the Queensland Murray-Darling Basin was developed, reviewed and updated by the QMDC Executive Committee over an 18 month period. The policy is in response to existing and emerging issues relating to both site specific and cumulative impacts on natural resources from the mining and energy industry. Given the stage of industry, primarily the policy aims to prevent adverse effects.

- 4.1 QMDC supports the development of renewable energy resources as the region's first preference for energy supply and where that development can provide a sustainable source of energy for the region without causing adverse environmental effects.
- 4.2 The context of this policy is based on the need to replace non-renewable energy resources with renewable resources.
- 4.3 The mining and energy industry currently rely on finite or non-renewable resources such as coal, oil and CSG.
- 4.4 The region's Natural Resource Management (NRM) Plans, accredited by State and Australian Governments (Joint Steering Committee), document the key natural resource assets and values of the region and targets for their management. The potential risk to these assets from the mining and energy industry activities is the foundation for the policy context.
- 4.5 The below-named natural resource assets are identified as being at risk to the impacts caused by activities and infrastructure integral to the mining and energy industry.
 - Water (surface and groundwater)
 - Vegetation and biodiversity
 - Land and soils
 - Air
- 4.6 There are key risks to natural resource assets from the energy and mining industry.
- 4.7 The following sections summarise some of the key risks to natural resource assets caused by the energy and mining industry activities and associated infrastructure.
 - 4.7.1 Adverse impacts to the extent, value and function of the region's biodiversity through further fragmentation due to vegetation clearing.
 - 4.7.2 Adverse impact on water quality in the region's catchments such as the pollution/sedimentation of waterways (aquifers, rivers, creeks and wetlands) caused for example by the erosion of mine sites and spoil heaps; leakages from storage and tailings dams; reinjection of aquifers; hydraulic fracturing, wastewater and effluent discharge or irrigation etc.
 - 4.7.3 The erosion of floodplains and creek banks; slumping; diminished connectivity between river channels and off-stream wetlands; and the modification of river, stream and floodplains flows caused by creek, and



river diversions, waste water discharge to streams and floodplain levy banks diverting flows.

- 4.7.4** Salinity risks associated with the use of wastewater when used for dust suppression, cleaning coal or irrigation and the damage increased salinity or other toxins may cause soils, farming land, creeks, rivers and wetlands.
- 4.7.5** Conflicting land use where mining and energy activities and associated infrastructure may use or permanently alienate areas of good quality soil (agricultural land) that are not able to be rehabilitated causing productive farming land or Strategic Cropping Land to be lost forever.
- 4.7.6** Weed seed spread from machinery and other vehicles.
- 4.7.7** Adverse impact on air quality caused by greenhouse gas emissions, dust, noise, flaring, gas leakages etc.
- 4.7.8** Contamination of soil, waterways, aquifers caused by industry operations and discharge.



5.0 Policy framework

The policy has been developed against a consistent framework for each of the key asset areas identified above and within the Regional NRM Plans. This framework is set out below.

Key asset area

Prevention Regional impact

1. Prevent adverse impacts to the extent, value and function of the asset across the Queensland Murray-Darling Basin.



2. Manage the cumulative impact of individual site activities and associated infrastructure on the extent, value and function of the asset across the Queensland Murray-Darling Basin.



Individual site impact

3. Prevent the direct impact of individual site activities on the asset.



4. Prevent the indirect or off-site impact of individual site activities on the asset.



5. Where impacts of individual site activities cannot be prevented they are:



a. Not permitted where the impact is not acceptable, includes enforcing existing legislation where it adequately protects the asset.



b. Within determined threshold limits for the asset, defining the point at which the impact is no longer acceptable.

Minimisation



c. Minimised through appropriate planning, design and operations.

Mitigation



d. Offset – to be clearly defined and appropriate.



e. Actively managed.



f. Rehabilitated – to previous state and be clearly defined and appropriate.

6.0 Principles and logic underpinning the policy

The development and application of the policy framework, the policies and future implementation strategies are underpinned by a number of guiding principles. These principles aim to apply a consistent and transparent approach within the policy framework. The principles are outlined and described in Appendix 2.

A logic model also informs the policy framework by helping to understand the cause/effect relationships between mining and energy industry activities and the short and long term goals for the region's natural resource assets. This is outlined in Appendix 3.

7.0 The Regional NRM Plans assets and targets

The Regional NRM Plans identify the baseline of natural resource assets in the Queensland Murray-Darling Basin. The following sections outline a summary of the target intentions for each asset identified in the NRM Plans and this document's policy statement for that asset.

7.1 Vegetation and biodiversity target intentions

Priority landscape scale ecosystems are maintained or improved.

Natural assets including native vegetation are managed or conserved to maintain ecological processes and ecosystem linkages, and increased in extent and abundance at priority catchment scales.

Increase in area of sustainably managed native vegetation for landscape and biodiversity outcomes through traditional and innovative economic uses.

Areas of identified high nature conservation significance are maintained in current condition and improved against the Common Nature Conservation Classification System.

Decline in populations of 'at risk' flora and fauna species are halted.

The biodiversity condition and ecological health of native vegetation in priority catchments are maintained or improved.

7.2 Vegetation and biodiversity policy

7.2.1 Prevent adverse impacts from the mining and energy industry on landscape functions of native vegetation coverage, ecosystem linkages, ecological processes and biodiversity condition in the Queensland Murray-Darling Basin.

7.2.2 Manage the cumulative impact across the Queensland Murray-Darling Basin to vegetation and biodiversity assets from individual site activities by:

- a. Appropriate planning and design at a local and landscape level, to avoid unnecessary clearing causing fragmentation or loss of habitat.
- b. Requirement to offset using native vegetation within the local area to cause no cumulative impact (or no net loss) in the Queensland Murray-Darling Basin.

7.2.3 Prevent individual site impacts from mining and energy industry activities by:

- a. Not permitting clearing of Regional Ecosystems mapped as 'Endangered' or 'Of Concern' protected under the *Vegetation Management Act 1999*, or listed ecological communities under the *Environmental Protection and Biodiversity Conservation Act 1999*.
- b. Avoiding areas covered by voluntary Conservation Agreements or covenants.
- c. Requiring rehabilitation to at least the site's pre-mining condition (including former value and extent), with native (endemic) vegetation. A rehabilitation plan must be established in a timely manner and state clear and acceptable short term and long term goals and plans, and include financial security.

7.2.4 The establishment of endemic vegetation and enhancement of biodiversity values are considered for the reclamation of land (recovery of waste land), or for plantation or agroforestry ventures, or offset requirements, where it is appropriate and adds value to landscape and ecological functioning.

Vegetation plantings or offset regeneration must not impact on:

- a. Existing land use, such as primary production, where it may cause local or cumulative impacts to the industry.
- b. Soil, surface or groundwater assets through the use of saline or excessive irrigation water.

7.3 Riverine, floodplains and wetlands target intentions

Priority riverine, aquatic, wetland, floodplain and riparian ecosystems are maintained or improved relative to baseline conditions.

Flow regimes for health of wetland organisms are maintained or improved against baseline conditions.

Balance ensured between ecosystem health and water use by achieving priority water quality objectives.

The following key water quality indicators remain below baseline levels within specified conditions:

- *salinity concentrations at end of valley locations*
- *total suspended sediment loads*
- *pesticide concentrations*
- *nutrient concentrations.*

7.4 Riverine, floodplains and wetlands policy

7.4.1 Prevent adverse impacts from mining and energy industry activities to the riverine, aquatic, wetland, floodplain and riparian assets and function in the Queensland Murray-Darling Basin.

7.4.2 Manage the cumulative impact across the Queensland Murray-Darling Basin to riverine, aquatic, wetland, floodplain and riparian assets from individual site activities by:

- a.** Appropriate planning and design of activities at the landscape and local level to identify and adequately protect all waterways, floodplain functioning and wetlands, considering values and function, taking into account:
 - i. in-stream flow regimes
 - ii. surface water flow systems (eg potential contaminants such as salt, erosion, groundwater interface, barriers to movement of flow and in-stream species risks)
 - iii. groundwater flow systems
 - iv. riparian function (eg groundcover, bank stability, habitat, connectivity)
 - v. wetland and floodplain function.
- b.** Restricting activities within water quality baseline indicators to be set appropriate to sub-catchment levels, and local and regional threshold limits (when determined).

7.4.3 Prevent direct and indirect adverse impacts from mining and energy industry activities by:

- a.** Excluding mining and energy industry activities from within a defined buffer zone for waterways appropriate to stream order and defined buffer zones upstream from and including wetland; specifically 500m for stream orders 5, 6 & 7; 100m for stream orders 2, 3 & 4.
- b.** Ensuring that legislative protection is afforded to Ramsar listed wetlands and feeder streams for 100 kilometres or a safe distance depending on activity upstream.
- c.** Not permitting diversions of number 4, 5, 6, and 7 stream order waterways.
- d.** Not permitting and actively preventing off-site movement of soil, salt, contaminants and weeds to riverine, aquatic, wetland, floodplain and riparian areas, either directly or through landscape processes.
- e.** No adverse impact to surface water flow systems within the floodplains including interaction with groundwater flow systems.

7.4.4 Minimise direct disturbance to riverine, floodplain or wetland environments, and minimise impacts from hydrological changes downstream caused by infrastructure from mining and energy industry activities by:

- a. Appropriate planning and design for stream order waterways 1, 2 and 3, considering values and function and taking into account:
 - i. in-stream flow regimes
 - ii. surface water flow systems (eg potential contaminants such as salt, erosion, groundwater interface, barriers to movement of flow and in-stream species risks)
 - iii. groundwater flow systems
 - iv. riparian function (eg groundcover, bank stability, habitat, connectivity)
 - v. wetland and floodplain function.
- b. Requiring rehabilitation of the site at least to its pre-mining condition (including former value and function).

7.5 Surface water, groundwater and associated flow systems target intentions
Water assets are sustainably managed in a conjunctive manner to achieve:

- *water use efficiency measures for high water use industries/sectors*
- *the stabilisation of groundwater levels for high priority sub artesian groundwater systems and the prevention of lowered pressure in the Great Artesian Basin.*
- *trading rules that are in accordance with water allocation security objectives as defined by the final Condamine Balonne, Border Rivers, Warrego/Paroo and Moonie Water Resource Plans*
- *ecological outcomes that are in accordance with Environmental Flow Objectives as specified in the Condamine Balonne, Border Rivers, Moonie and Warrego, Paroo, Bulloo and Nebine Water Resource Plans.*

7.6 Surface water, groundwater and associated flow systems policy

7.6.1 Prevent adverse impacts from mining and energy industry activities on the surface and groundwater flow system assets and function in the Queensland Murray-Darling Basin. The complex nature of the floodplains, particularly the Condamine floodplains, including:

- i. alignment between Strategic Cropping Land and floodplains
- ii. the location of key aquifers under the floodplains. and
- iii. the impact any above ground infrastructure has on overland flows on floodplains.

It is QMDC's view that the mining industry and CSG activities should not occur on the floodplains.

7.6.2 Manage the cumulative impact across the Queensland Murray-Darling Basin to surface and groundwater flow system assets from individual site activities by:

- a. Appropriate planning and design at a local and landscape level to manage changed surface flow regimes under varying circumstances and reduce impact to local and downstream natural and built assets.
- b. Not permitting activities on floodplains within established buffer zones.
- c. Enforcing the Floodplain Management Guidelines outside the buffer zones.
- d. Restricting activities impacting on water quantity, quality and pressure, with baseline indicators to be set appropriate to local and regional threshold limits (when determined).
- e. Requiring all water to be accounted for and be subject to Water Resource Planning and associated legislation regulating changes to and allocation of overland flow, surface water and groundwater flow systems.
- f. Ensuring water assessment and management is on the basis of understanding the cumulative impact on catchments and groundwater systems.
- g. Requiring rehabilitation of the aquifer or stream to at least to its pre-mining condition (including former value and function).

7.6.3 Prevent adverse impacts caused by direct disturbance to, or extraction from, groundwater flow systems by:

- a. Not permitting activities where the impacts are not known or understood where the environmental or human health risks are high.
- b. Not causing interconnectivity between groundwater flow systems.

- c. Only permitting well stimulation or hydraulic fracturing (fracking) in coal measures where it can be guaranteed interconnectivity between aquifers and aquatards (aquaculdes) resulting from the fractures in the coal seams and their surrounds will not occur.
- d. Not permitting activities where there are known impacts to stock and domestic or irrigation supplies.
- e. Not permitting activities that may, or will cause an impact to the groundwater quality, quantity and pressures in the Great Artesian Basin.
- f. Not permitting the use of radioactive tracer beads or chemicals for well stimulation or hydraulic fracturing (fracking) where they may pose significant hazards to humans or other organisms, including the potential for bioaccumulation.
- g. Establishing and implementing minimum standards for safe drilling depths to ensure drilling stops at the coal seam and does not penetrate any adjoining (below) GAB sandstones.
- h. Requiring CSG companies to implement a long term management plan for wells (including exploration, production, monitoring wells). This should include a bond for long term maintenance.

7.6.4 Re-injection of associated water into aquifers by the mining and energy industry is not supported due to:

- a. Lack of evidence, scientific data and experience regionally to have certainty there will be no impact to receiving or other connected aquifers.
- b. Lack of agreed definition of a 'safe' aquifer for re-injection disposal.
- c. Lack of independent monitoring and assessments of this practice.
- d. Potential for impact to the Great Artesian Basin.

7.6.5 Where mining and energy industries make associated water available for 'beneficial use', the water must be:

- a. Subject to risk assessments based on the immediate, future or cumulative impact which may result from its use, taking into account potential contaminants including salt, surface and groundwater interaction, changes to overland flow, and new and existing infrastructure.
- b. Subject to existing legislation, including the *Water Act 2000*, *Environmental Protection Act 1994* and other relevant legislation and Water Resource Plans for the relevant catchment and associated Land and Water Management Plans, including mining or energy company-owned land.

7.6.6 Associated water (including by-products such as brine) must be:

- a.** Subject to Water Resource Plans and associated legislation regulating changes to overland flow and surface water flow systems.
- b.** Aggregated only where risk and safety measures are appropriate for the volume of water and storage location within the landscape.
- c.** Disposed of in a manner whereby 'disposal' is defined against specific criteria and limitations that mitigates the risk and safety associated with the storage, transport, destination, and cumulative and long term impacts of such volumes of water.
- d.** 'Disposed' of within natural systems where it does not impact on the ecological functioning of that system and is subject to other policies within this document, including cumulative impact to that system.
- e.** 'Disposed' of into a natural system only when the water quality parameters are within locally established guidelines or historical baseline, as per other policies within this document, including cumulative impact to the system.

7.6.7 By-products from associated water treatment processes, including brine, must be:

- a.** Preferably utilised for a tertiary industrial use that safely manages any contaminants or potential offsite impacts of waste accumulation.
- b.** Removed from the landscape and managed within a controlled and safe environment, with disposal sites registered with the Environmental Protection Agency.
- c.** Not permitted to be covered or buried insitu in the landscape from or within evaporation ponds or storage ponds, regardless of whether the pond has clay or impermeable lining.

7.6.8 Emergency releases of associated water (treated or untreated) must be:

- a.** Fully considered as part of Environmental Management planning and design to ensure mining and energy operations and infrastructure are adequate during emergency events, such as floods, thereby avoiding the need to discharge.
- b.** Required to meet approved Regional Water Quality Guideline limits.
- c.** For a 7 day maximum period only or the period of the 'event' eg flood event.

7.7 Land and soils target intentions

Land is managed in a sustainable manner and sufficient land is available to meet high value community and environmental needs.

Salinity impacts on assets are reduced against baseline conditions, and salinity impacts in areas of high salinity hazard are avoided or minimised.

Soil health targets are 'fit for purpose' where soil condition is maintained or improved, and soil degradation impacts have not increased against a baseline.

7.8 Land and soils policy

7.8.1 Prevent adverse impacts from mining and energy industry activities on land and soil assets and function in the Queensland Murray-Darling Basin.

7.8.2 Prevent direct impacts from mining and energy industry activities on land and soil assets by:

- a. Not permitting disturbance of soils where the structure or condition is impacted.
- b. Restricting activities by enforcing the *State Planning Policy 1/92 Development and the Conservation of Agricultural Land* for the protection of areas defined as 'Good Quality Agricultural Land', where the ability for primary production on that land is reduced or removed in the short or long term.
- c. Not permitting activities within areas defined as 'Strategic Cropping Land'.

7.8.3 Minimise impacts caused by direct disturbance to soil assets and function by:

- a. Appropriate planning and design, including identification of low risk areas in the landscape for mining and energy industry development.
- b. Not permitting activities causing off-site movement of soil, salt and other contaminants and weeds, either directly or through landscape processes.
- c. Requiring rehabilitation of the site and area of impact, at least to its pre-mining condition (including former value and function). A rehabilitation plan must be established in a timely manner and state clear and acceptable short term and long term goals and plans, and include adequate financial assurance.
- d. Requiring no mining infrastructure to be constructed in the floodplains.

7.9 Managing weed and pest animal threats target intentions

The extent and impact of priority terrestrial and aquatic weeds and pests are stabilised and decreasing.

Reduce the incidence of recorded infestations of new weed and pest outbreaks.



7.10 Managing weed and pest animal threats policy

7.10.1 Prevent impacts from mining and energy industry activities, caused by the introduction or spread of invasive plants and animals, posing a threat to riverine, floodplain, biodiversity, land and soil, and cultural assets and function in the Queensland Murray-Darling Basin.

7.10.2 Prevent the introduction or spread of invasive plants in the Queensland Murray-Darling Basin from mining and energy industry activities by:

- a. Adoption and implementation of an industry Code of Conduct that meets current legislative requirements within the *Land Protection Act (Stock Routes and Pest Management) 1994*, (soon to be the *Biosecurity Act*) best management practice for weed seed spread prevention, and has adequate compliance for all stages of operations (and operators).
- b. Identification of risk of weed seed introduction or spread at all stages of exploration, production and rehabilitation operations of the mining and energy industries and associated activities.
- c. Preparation and delivery of pest management plans in line with the Code of Conduct, and property, district, local government, regional and state pest management plans to mitigate risk.
- d. Increasing the knowledge and skills of people working in the mining and energy industry, including post mining activities, to identify weeds and potential risks and respond appropriately.

7.10.3 Where mining and energy industry activities or persons are responsible for the introduction or spread of invasive plants or animals, they must prevent further spread of the infestation and actively manage with the aim of eradication.

7.10.4 Where mining and energy industry activities are conducted within existing invasive plant or animal infestation areas, they must prevent further spread, and work cooperatively with the landholder to actively manage or eradicate the infestation.

7.11 Air quality

Regional air quality must be maintained at a level that protects human and environmental health from harm caused by dust, noise, vibration, excessive lighting and toxic gas emissions. Air quality must be measured against individual site specific and cumulative impacts from all operations and infrastructure of the energy and mining industries.

7.11.1 Prevent adverse impacts from mining and energy industry activities on air quality in the Queensland Murray-Darling Basin by:

- a. Conducting specific baseline ambient air quality monitoring over the development area and before the commencement of all activities and operations in order to establish a baseline by which air quality can be measured to address current and potential impacts on human and flora and fauna health.

- b.** Conducting regular and ongoing ambient air quality monitoring throughout construction phase and during its operation.
- c.** Requiring independent monitoring for all mining and energy operations to ensure transparency and accountability to local and regional communities.
- d.** Making public monitoring data in a format that upholds the goals of the Environmental Protection Air Policy 2008 and allows public access and independent review of local and regional conditions and trends.
- e.** Ensuring monitoring and management plans are consistent (including units of measure), within the defined asset, and across mining and energy industry operations and reported against site, total and cumulative thresholds.

7.11.2 Prevent direct impacts from mining and energy industry activities on air quality by:

- a.** Not permitting construction and operational activities where dust, noise, vibration, lighting, gas emission impacts will cause human and environmental harm to flora and fauna and domestic stock
- b.** Not permitting venting or flaring of CSG where there are no defined air quality objectives to measure against

7.11.3 Minimise impacts caused by direct disturbance to air quality by:

- a.** Permitting venting or flaring only in emergencies. If flaring occurs emission should be offset in the affected region.
- b.** Requiring the operation of plants, transport, infrastructure and other facilities from renewable energy sources where possible.

7.11.4 Reducing greenhouse emissions from the generation of CSG is a key climate change mitigation strategy that requires the mining and energy industry to address. QMDC identifies the enormous potential for the mining and energy industry to realise savings in energy costs and associated greenhouse emissions through energy efficiency improvements.

- a.** If there are fugitive emissions they need to be fully offset with preference to investment in the region.

7.12 Aboriginal interests and cultural assets target intentions

Ensure the duty of care provisions are adhered to under the Cultural Heritage Act 2003.

Increase Aboriginal participation in NRM.

Improved knowledge and awareness of Aboriginal interests in NRM.

Maintain and enhance significant cultural heritage sites, incorporating NRM outcomes.

Improved cultural awareness.

Ensure adequate resourcing for Aboriginal involvement.

7.13 Aboriginal interests and cultural assets policy

7.13.1 Prevent adverse impacts from mining and energy industries to Aboriginal interests and cultural assets in the Queensland Murray-Darling Basin by:

7.13.2 Complying with existing legislation where it adequately protects and manages objects, sites or areas of aboriginal cultural value.

7.13.3 Seeking opportunities to resource Traditional Owners and Aboriginal communities in a wide range of engagement and employment/contractor opportunities.

7.13.4 Engaging with the Regional Advisory Aboriginal Group for Maranoa–Balonne and Border Rivers.

7.13.5 Including Aboriginal values in planning and implementation activities.

7.13.6 Ensure all staff members have an appropriate level of cultural understanding.

7.14 Institutional assets target intentions

Improved institutional frameworks to engender sustainable natural resource management.

Increase private sector (non-government) investment and involvement in sustainable natural resource management.

Robust regional bodies demonstrating leadership in sustainable natural resource management processes.

Effective and comprehensive monitoring and evaluation programme in place.

7.15 Institutional assets policy

7.15.1 Prevent adverse impacts to the region's natural resources, community, and economy from mining and energy industry activity by **promoting as part of responsible business practice:**

- i. **Environmental** – the environmental impact, direct or indirect, of a

company's operations, products or services including those of its suppliers or subcontractors.

- ii. **Community/social** – the impact of a company's projects, products, services or investments on the community at a local and global level.
- iii. **Workplace practices** – including respectful, treatment of employees in matters related to recruitment and selection, diversity and equal opportunity, work/life balance, professional development and progression, managing redundancies and full entitlement to employment rights.
- iv. **Marketplace and business conduct** – responsible behaviour in developing, purchasing, selling and marketing products and services.
- v. **Ethical governance** – from executive level and throughout a company: sharing information and disclosure, transparency; risk management; due diligence; effective codes of conduct and ethics.

The importance of environmental, social and governance factors requires integrating a broader assessment of risk into decision-making.

7.15.2 QMDC supports a broad definition of cumulative impacts that includes the successive, incremental and combined impacts of an activity on community, environment and the economy.

For this policy, the term is taken to mean the combined impact of mining and energy operations and all associated infrastructure (onsite and offsite) on the QMDB communities and natural resources over time.

More specifically these different types of impact are:

- i. *Spatial extent impacts* – those which occur over an area, eg the area of vegetation that has been cleared for mining, the amount of land disturbed and rehabilitated.
- ii. *Spatial intensity impacts* – when a location is impacted on by the activities of multiple sites, eg where the dust of several upwind mine sites contributes to elevated levels of dust in particular areas.
- iii. *Simple temporal impacts* have a specific time of commencement and a measured form over time, eg the amount of land rehabilitated over time as a reflection of the stage of development of the mine life.
- iv. *Offset temporal impacts* occur when multiple simple temporal impacts are superimposed upon one-another over time, eg 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.

7.15.3 The cumulative impacts of mining and energy industry development within the Queensland Murray-Darling Basin are managed by:

- a. Participating in multiple planning with key community organisations, state and local government to identify appropriate areas within the landscape, community and economy of the region for mining and energy industry development.
- b. Safeguarding natural resource and community assets and values from associated infrastructure. QMDC is concerned about the impact of the network of associated infrastructure, for example, pipelines, power-lines, roads, telecommunication towers etc. The first option should be the utilisation of common easements for associated infrastructure. Easements should:
 - i. avoid remnant vegetation, where infrastructure is at a safe height above ground or safe depth below ground;
 - ii. avoid risky soil types that are highly erodible; and
 - iii. abide by floodplain management guidelines.
- c. Notifying local governments and communities of proposed developments in a timely and publically accessible manner. Involving local governments in all stages of planning and providing adequate notification and support to plan for and manage the impact of significant developments and associated developments on the resources and services of the local government and the wider community.
- d. Setting within legislation cumulative upper and lower limits for changes to natural resource asset condition (including accounting for modelled climate change and variability) 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.
- e. Ensuring monitoring requirements and management are consistent (including units of measure), within the defined asset, and across mining and energy industry operations and that they report against site, total and cumulative thresholds.
- f. Conducting independent monitoring of water (surface and groundwater); vegetation and biodiversity; land and soils and air to ensure transparency and accountability to the community.

7.15.4 A code of conduct for community engagement and disclosure of information is developed addressing:

- a. 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 mining and energy industry impacts.



- b.** Timely and adequate notification of proposed developments, particularly to 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. Industrial and residential zoning, refuse management, sewerage management, roads, infrastructure, services (health, police, schools), airports, and emergency services.
- c.** Engagement that is timely, meaningful and relevant and conducted appropriately for each stakeholder.
- d.** Public notification of and access to approved Environmental Authorities or Licenses and consultation with regards to any proposed changes to Environmental Authorities.
- e.** Timely and public disclosure of monitoring requirements, and subsequent results for the condition and trend of natural resource assets including site, total and cumulative impacts as they relate to the mining and energy industry.
- f.** Notification to landholders of all chemicals stored and used on the property. Further contingency planning is needed across industries for risks associated with direct contamination to livestock, food and fibre crops; failure to comply to declaration of chemicals and withholding periods by landholders; compensation for lost sales and any industry impact.
- g.** Public notification of breach of conditions and public access to complaints registers.

7.15.5 Minimise the risk and potential impact to the natural resources, community and economy of the region by:

- a.** The State Government securing a significant bond or proportion of royalties for implementation of short and long term rehabilitation/remediation plans, safeguarding against risk associated with collapse/abandonment of companies and/or the industry.
- b.** Contributing to the increased costs to local governments for management of infrastructure, resources and services, for example sewage treatment, waste management, domestic water treatment etc as a direct result of mining and energy industry development.
- c.** Undertaking planning and studies to address the unique issues of smaller rural and residential holdings and the compounded impact to communities and natural resource values of the area.

7.15.6 A pre-determined percentage of the royalties received from the mining and energy industry is invested in natural resource management within the originating region.

Appendix 1

Consultation objectives and response

The Queensland Murray-Darling Committee Executive Committee approved a strategy for the development of this policy in February 2009.

The objective of the consultation was to:

1. To inform the community of the Queensland Murray-Darling Basin of the policy in development and the objectives of the policy.
2. To source a wide range of views from all stakeholders (landholders, rural and regional community members, agriculture and agribusinesses, environment and conservation, State and local government, mining and energy sector, research and science).
3. To secure feedback from organisations and individuals to inform and provide direction for the policy development.

Consultation has been ongoing commencing in April 2009.

Consultation response

Date	Type	Organisation	Policy Version	Comments
05/03/09	QMDC Executive Meeting (Toowoomba)	QMDC Executive	Draft 1_090303	Draft for consideration by Executive Committee. Amendments.
02/04/09	QMDC Executive Meeting (St George)	QMDC Executive	Draft 1 Members_090403	Draft for consideration by Executive Committee. Release for consultation.
03/04/09	QMDC Members Meeting (St George)	QMDC Members	Draft 1 Members_090403	Members split into 4 groups and reviewed sections of the draft policy. Feedback documented.
15/04/09	State Roundtable NRM Meeting	RGC, QFF, AgForce, QCC, WWF, LGAQ	Draft 1 Consultation_090414	Presentation and outline of policy provided.
29/04/09	Meeting	Kerry Shine, Member for Toowoomba North	Draft 1 Consultation_090414	Presentation and outline of policy provided.
08/05/09	Meeting	South West NRM	Draft 1 Consultation_090414	Presentation and outline of policy provided. Feedback documented. Taking to committee for further consideration.
21/05/09	Meeting	SWNRM Condamine Alliance RGC	Draft 1 Consultation_090414	Outline of policy provided. Agreement to collective approach with further consideration by committees.
20/05/09	Conference Townsville	NRM Showcase Conference	Presentation Mapping and policy development	Presentation and outline of policy development.
03/07/09	QMDC Members Meeting (Moonie)	QMDC Members	Draft 1 Consultation_090414	Members split into 4 groups and reviewed sections of the draft policy. Feedback documented.



Date	Type	Organisation	Policy Version	Comments
28/07/09	Meeting (Tara)	Tara and District Rural Residents and Private Landholders Group	Draft 1 Consultation_090414	Provided outline of presentation and policy. Received documented concerns regarding local issues.
28/07/09	Closed community meeting (Tara)	Tara and District Rural Residents and Private Landholders Group; Queensland Gas Company; Department of Mines & Energy; Environmental Protection Agency		No direct policy consultation. Agenda as requested by Tara and District Rural Residents and Private Landholders Group. QMDC staff (Liz Todd & Alexis Green) attended as observing participants at request of Tara and District Rural Residents and Private Landholders Group.
20/08/09	Surat Basin Conference (Dalby)	QGC QG M&E	Draft 3 Consultation_090819	Distributed policy document. Detailed discussion with QGC. Brief discussions with other gas and coal companies. Discussion with Future Food members.
03/09/09	Meeting CSG Water Futures Taskforce (Dalby)	CSG Water Futures Taskforce	Draft 3 Consultation_090819	Reviewed some of draft. Draft distributed to members.
22/09/09	Email	Western Downs Regional Council	Draft 3 Consultation_090819	Documented feedback.
29/09/09	Meeting Darling Downs Regional Landcare (Oakey)	Darling Downs Landcare Groups	Draft 3 Consultation_090819	Presentation and outline of policy provided.
29/09/09	Senate Inquiry: Impacts mining NRM (Oakey)	Senators	Draft 3 Consultation_090819	Senate Inquiry: Submission based on mapping and draft policy options. Evidence documented in Hansard.
05/10/09	Meeting Local Governments (Miles)	Western Downs Maranoa Balonne Goondiwindi Toowoomba	Draft 3_LG_091005	Presentation and review of draft. Comments inserted track changes.
13/10/09	Meeting Industry (Marque Brisbane)	QCC, WWF, AgForce, RGC	Draft 3 Industry_091013	Presentation and review of draft. Comments inserted track changes.
06/11/09	Meeting Agricultural stakeholders (Dalby)	Local Government, AgForce, Landcare, industry groups	Draft 3 Consultation_091015	Review of definition, mapping and policy on Premium Quality Agricultural Land Recommendations documented in meeting minutes. QMDC_PQAL_Meeting_Dalby_091106
26/11/09	Meeting (Brisbane)	Queensland Resources Council	Draft ConsultationQRC_091124	Discussion and outline of policy. Follow up required.



Date	Type	Organisation	Policy Version	Comments
04/08/10	Regional Aboriginal Advisory Group Meeting (Roma)	QMDC, RAAG representatives	Final Draft 2010	Update on policy development and key areas of concern.
27/08/10	QGC Regional Community Committee Meeting	Committee members	Final Draft 2010	Copies of policy disseminated.
07/09/10	SCL Forum (Dalby)	Landcare, industry groups, Key stakeholders, landholders, Local govt, CSG companies, APPEA, BAS	Final Draft 2010	Discussion on Draft SCL Policy & alignment with Final Draft 2010.
07/10/10	QMDC AGM (TWMBA)	Executive Committee, QMDC members, Public	Final Draft 2010	Update on policy development and current issues of concern.
17/11/10	Origin Groundwater & Fracking Information Session (Chinchilla)	QMDC, Origin	Final Draft 2010	Discussion on key groundwater and fracking issues; policy development.
01/04/11	Property visits and Presentation	DG DERM John Bradley, QMDC, landholders	Final Draft 2010	Property site visits, presentation and policy development discussions.
17/06/11	QGC Water Forum (Dalby)	QGC, QMDC, CA, Landcare groups, BAS, Industry groups, QGC Regional Community Committee, Landholders	Final Draft 2010	Discussion on key water issues; policy development.
22/06/11	Land Access & Mining Conference (BNE)	Conference delegates	Final Draft 2010	Presentation on key policy concerns.
02/08/11	QMDC presentation & Meeting Investment Analysts from Melbourne & Sydney (TWMBA)	Private Investment Advisors, BAS, Landholders, Peter Shannon (lawyer), RDA, Industry, Local govt	Final Draft 2010	Presentation Final Draft & discussion on key areas of concern, best industry practices and ethical investment.
10/11	Additional consultation	Community and QMDC members	Revised Final Draft 2011	Presentation Revised Final Draft & discussion on key areas



Appendix 2

Principles underpinning policy development and implementation

The principles that underpin the development and application of the policy have been drawn from those that guided the development of the Regional NRM Plans for setting targets and management of the region's natural resource assets; and additionally from the consultation process for the development of this policy document. These principles aim to apply an agreed, consistent and transparent approach within the policy framework.

Outline and description of principles

Principle	Description of use in the policy
Managing natural resources	
Prevent adverse impacts on natural resources from occurring	Prevention of adverse impacts to natural resources is the underpinning of a number of other principles. Where an impact cannot be prevented it should be minimised; and rehabilitated.
Address causes not symptoms	Identify causes of natural resource degradation and address those causes (where known) as a priority.
Rehabilitate impacts to natural resources	Restoration of disturbed land or natural resource to its pre-mining condition (includes value and function), or an acceptable alternative. Rehabilitation (amelioration) or reclamation (recovery of waste land) goals and plans to be clear and acceptable in the short and long term.
Conservation of natural assets	A fundamental underpinning of the policy is the conservation of our natural assets and resources. In particular, those that are in short supply, endangered or threatened, including through no go or buffer zone areas. Prevention of impact to high value assets is the highest priority. Criteria needs to be identified to establish value of asset, including those already established.
Sustainable use of natural resources	Recognition of the need for balance between economically viable production and sustainable use of natural resources.
Precautionary principle	The lack of full science certainty should not be used as a reason for postponing a measure to prevent degradation of the environment if there are threats of serious or irreversible environmental damage.
Ecologically sustainable development	The <i>Natural Heritage Trust of Australia Act 1997</i> (subsection 21 3a) states that the principles of ESD consist of the following core objectives: i) To enhance individual and community well-being and welfare by following a path of economic development that safeguards the welfare of future generations ii) To provide equity within and between generations iii) To protect biological diversity and maintain essential ecological processes and life-support systems.
Identify and protect baseline natural resource assets and their values	The natural resource assets and their values and management targets are set out in the Regional NRM Plans. These Plans are the result of extensive community consultation and endorsement of the state and federal governments.
Threshold limits are determined for each asset	A threshold limit defines the point at which an impact is no longer acceptable. Threshold limits need to be identified and set for natural resource assets and determined on a regional (cumulative) and local scale. They reflect whether the asset has the capacity to withstand certain impacts without irreversible degradation.
Cumulative impacts on natural resources and community are considered and prevented	See pages 19 -20 for a definition of cumulative impact.

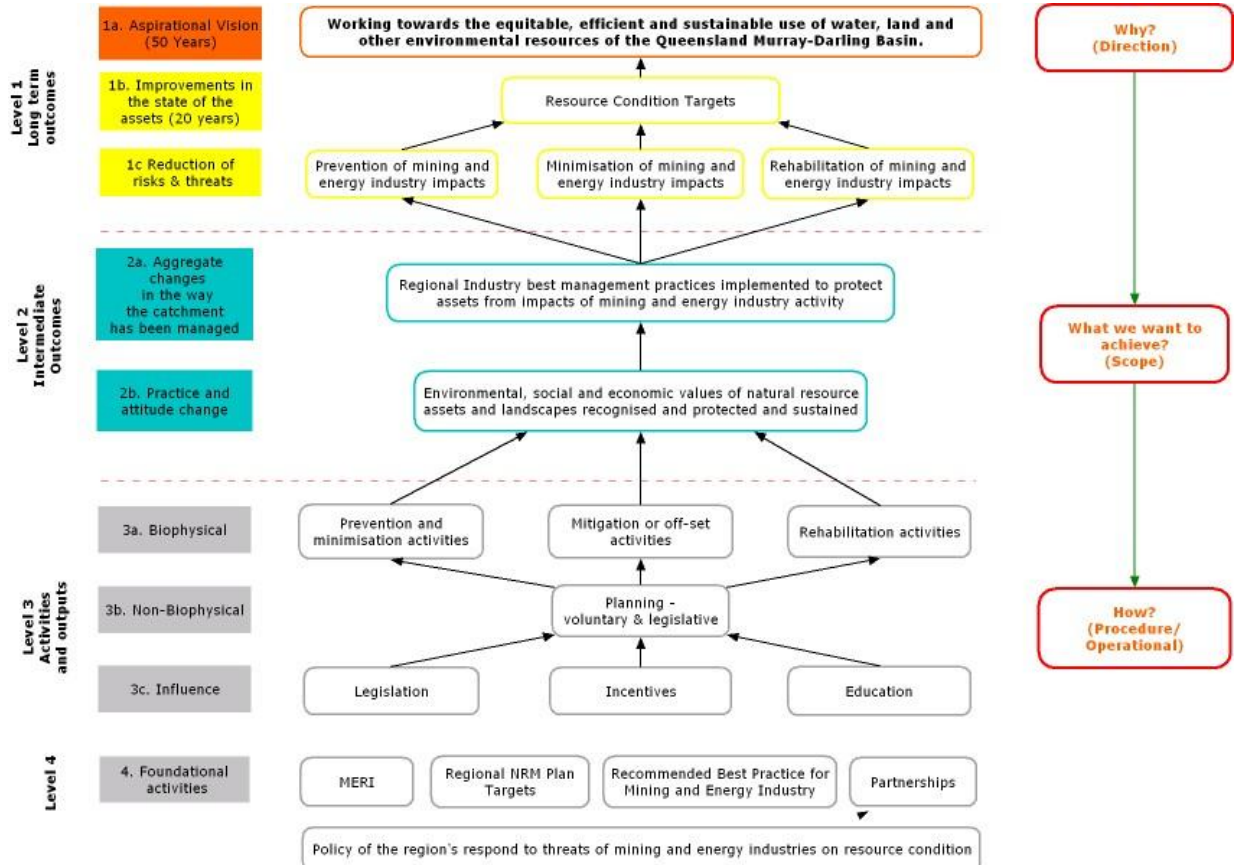
Principle	Description of use in policy
Institutional frameworks	
Alignment of planning processes	Coalition of existing relevant planning processes, within the region and across jurisdictions including state and local government to achieve desired community outcomes.
Consistency with other policies and legislation	Referenced where appropriate and reflected in policies.
Existing legislation is applied where it adequately protects the natural resource assets	Existing legislation in most circumstances protects natural resource assets. Policies therefore address cases where an exemption to such legislation applies, or is inadequate, and unacceptable degradation to a natural asset is likely.
Continuous development and improvement of policies	The policy development and implementation process is iterative with monitoring and evaluation element feeding back into the ongoing planning and policy. New and updated information will contribute to the improvement of successive policies.
Best available science	Planning for sustainable use of natural resources requires access to and understanding of many scientific and technical issues and approaches. The development and implementation of the policy is based on best available science at the time and will continue to be the case through iterative versions of the policy.
Risk management approach to policy and protection of assets	Policies are developed based on a risk management approach, or potential threat based on certain activities.
Public consultation and disclosure of information	The timely and appropriate disclosure of information, including monitoring data is expected by the public. The community expects to be consulted on changes or decisions currently made outside of the public arena where significant changes to intent are imminent.
Activities are carried out in a responsible manner	Mining and energy industry activity is expected to be carried out in a wider socially and environmentally acceptable/responsible manner
Safe guard against the collapse of industries/companies and subsequent responsibilities	The issuing of a license needs to stipulate a guarantee for rehabilitation and ensure safe guarding against collapse of industries/companies and subsequent responsibilities identified
Consultation process	
Community based process	The consultation process allows for the community to express its directions for natural resource management on the basis of local knowledge as well as scientific and technical rigor.
Effective and continual engagement of stakeholders	Provide the opportunity for the engagement of stakeholders and for people and organisations to have input in the development of the policy, and ongoing implementation and review of the policy.
Capacity building to ensure quality of ongoing process	The capacity of Regional Bodies and other stakeholders is recognised as vital to the ongoing development and implementation of the policy.
Objectivity and transparency	The policy has been developed in an objective and transparent manner with all people having the opportunity to provide input into the process. Receiving, analysing and responding to that feedback is done in a way that is open to scrutiny.



Appendix 3 Program logic

Program logic is a method of clarifying the rationale behind the policy options at the strategic and operational levels. The purpose is to understand the cause-and-effect relationships between mining and energy industry activities, intermediate outcomes and ultimate goals.

Figure 2. Program Logic for responding to impacts of mining and energy industry on natural resource condition in the Queensland Murray-Darling Basin.



Acronyms and definitions

Associated water referred to in State legislation is the water that reaches the surface as a result of Coal Seam Gas being liberated by reducing the hydrostatic pressure in coal seams by dewatering. The term 'associated water' may also be used to refer to water produced from other petroleum activities. <http://www.dip.qld.gov.au/resources/report/coal-seam-gas-water-discussion-paper.pdf>

Cumulative impacts result when the effects of an action are added to or interact with other effects in a particular place and within a particular time. While impacts can be differentiated by direct, indirect, and cumulative, the concept of cumulative impacts takes into account all disturbances since cumulative impacts result in the compounding of the effects of all actions over time. Thus the cumulative impacts of an action can be viewed as the total effects on a resource, ecosystem, or human community of that action and all other activities affecting that resource no matter what entity is taking the actions.

Energy industry is a generic term for all of the industries involved the production and sale of energy, including fuel extraction, manufacturing, refining and distribution. In particular, the energy industry comprises:

- the petroleum industry, including oil companies, petroleum refiners, fuel transport and end-user sales at gas stations
- the gas industry, including natural gas extraction, and coal gas manufacture, as well as distribution and sales
- the electrical power industry, including electricity generation, electric power distribution and sales
- the coal industry
- the nuclear power industry
- the renewable energy industry, comprising alternative energy and sustainable energy companies, including those involved in hydroelectric power, wind power, and solar power generation, and the manufacture, distribution and sale of alternative fuels.

Individual site impacts include clearing of native vegetation (causing loss of habitat extent and connectivity, and habitat), weed incursions, pest animal presence, and disturbance to wildlife (lighting, noise, dust, traffic, displacement).

Mining is the extraction of valuable minerals or other geological materials from the earth, usually from an ore body, vein or (coal) seam. Materials recovered by mining include base metals, precious metals, iron, uranium, coal, diamonds, limestone, oil shale, rock salt and potash.

Native vegetation means plants that are indigenous to the QMDB, including trees, shrubs, herbs and grasses. Endemic refers to plant material (seeds, seedlings) sourced from the same bio-province of the original cleared vegetation. Province is as defined in Sattler and Williams (1999).

NRM natural resource management.

Offset (native vegetation) is any works or other actions to make reparation for the loss of native vegetation arising from the removal of native vegetation. Its purpose is for the



protection, enhancement or regeneration of native vegetation leading to no net loss, or a net gain of native vegetation in the Queensland Murray-Darling Basin.

An offset may be:

- an area of non-remnant vegetation that is protected and managed
- an area that is revegetated and protected
- an area that is set aside for regeneration or restoration, or
- any combination of the above.

An offset may involve undertaking works or making a payment for certain works to be provided. In either case, an offset should:

- achieve a gain in the quality and quantity of native vegetation commensurate with the native vegetation lost, and
- be secure and ongoing.

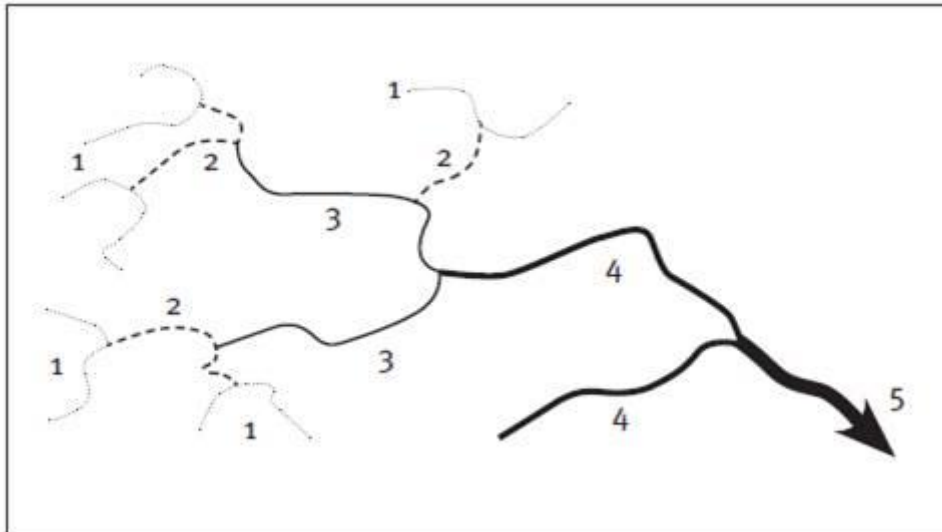
QMDB Queensland Murray-Darling Basin.

Re-established (native vegetation) is the provision for replanting of native species, of those that are indigenous to the area, to replace native vegetation lost on the site during the life of the mining and energy industry activities.

If an area of intact remnant vegetation is to be removed or destroyed:

- It is replaced with at least an equivalent area of planting using native vegetation (trees, shrubs and grasses) that are indigenous to the area and that are appropriate to the site, to reinforce or restore existing environmental values on the land or within the general area surrounding it.
- Measures such as fencing and weed control programs are taken to ensure the long term protection and enhancement of other intact remnant vegetation on the land or within the general area surrounding it.

Stream order is a numerical ordering classification of each watercourse segment according to its position within a catchment, as shown in Figure 1 (diagrammatic view of stream ordering) below. When two streams of the same order join, the resulting watercourse becomes one stream order larger. If two streams of a different order join, the resultant stream order is that of the larger stream.



Digital drainage data exists over most of Queensland and has been derived from relief and/or elevation mapping. Digital drainage data can be used to derive stream order classification. For the Murray-Darling Basin, stream order mapping has been produced and managed by DERM. More information available on stream protection zones from the Regrowth vegetation code – on freehold and Indigenous land and leasehold land for agriculture and grazing – version 1 <http://www.derm.qld.gov.au/publications/docs/p203735.pdf>.

Local water quality guidelines Queensland Water Quality Guidelines 2009 are technical guidelines for the protection of aquatic ecosystems. They complement the National Water Quality Management Strategy (NWQMS) including the Australian water quality guidelines (AWQG) by delivering guidelines that include locally and regionally relevant water quality data for fresh, estuarine and marine waters.

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