



The Queensland Murray-Darling Committee Inc. Comments on the Coal seam Gas Review November 2013

13 December 2013

Submission to:

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These comments are presented by the Acting Chief Executive Officer, Lisa Yorkston, on behalf of the Queensland Murray-Darling Committee Inc. (QMDC). QMDC is a regional natural resource management group that supports communities in the Queensland Murray-Darling Basin to sustainably manage their natural resources.

1.0 Background

QMDC supports amendment to coal seam gas mining regulation if it provides a high level of protection for the Queensland Murray-Darling Basin. QMDC has consistently sought a robust legislative and regulatory framework that is compatible with the protective mechanisms and community aspirations contained within regional natural resource management plans.

The major legislative overhaul of environmental law has encouraged QMDC to make numerous submissions on the government's red-tape reduction program. The extensive number of licenses and Environmental Authorities regulating the coal seam gas mining industry in Queensland has necessitated ongoing community participation in legislative processes.

There is an ever-increasing community expectation amongst QMDC member organisations and the landholders we work with that the red-tape reduction program implements an improved set of well-considered environmental management standards.



QMDC supports the streamlining of processes, but not at the cost of relaxing stringent control or oversight measures. We continue to urge the government to advance legislative reform by taking into consideration not only the individual impacts of each development or business licence application but also the cumulative impacts, social, economic and environmental, of the coal seam gas industry.

QMDC supports the need to align legislative and administrative processes within departments. QMDC has experienced how anomalies in water legislation, for example, create certain injustices especially when the mining and energy industry sector have inherent rights under the *Petroleum and Gas Act* to water and all other sectors are subject to water resource planning and allocations.

QMDC's major concern is that the extractive industry remains the driver for licensing regulatory reform and the argument for amending current regulation is still couched in terms such as reducing compliance and administrative costs to industry and government.

Red-tape fiscal arguments supporting the reduction of costs are in QMDC's opinion neither well-articulated nor factually proven. QMDC continues to assert the starting point for reform must be ensuring environmental protection and sustainability objectives are furthered, in the long term interest of the State, and not watered down because industry is having issues with the costs or the requirements of compliance.

Compliance is a government responsibility. QMDC is of the view government departments responsible for compliance are under resourced and the over reliance of self-regulation and voluntary compliance by the coal seam gas industry is not in the best interests of community.

QMDC asserts that the Queensland Competition Authority (QCA) needs to recommend a strong regulatory framework for the coal seam gas industry. Owing to the current nature of the industry's environmental, economic and social impacts, site specific and cumulative and all future potential risks and hazards, regulatory changes must be more stringent than ever.

All regulatory costs, whether borne by industry or government, should be an accurate reflection of those impacts and risks. This review should produce improved regulations and standards because that is what is required.

Overall QMDC is concerned that the drive to reduce regulation for coal seam gas mining and all the associated legislative change is swimming against the tide of community expectations of government.

Solutions offered by QMDC and other key stakeholders appear to have been largely ignored by government. Prior to the release of the Draft Report, consultation on QCA's proposed changes to coal seam gas mining regulation, have not included stakeholders other than industry. This highlights the ongoing disregard of community expertise and experience with dealing with the industry. Therefore, QMDC posits that the comprehensive review should be just that – all-inclusive, wide-ranging, far-reaching and thorough, engaging a wide range of stakeholders.



2.0 General comments

2.1 Regulatory changes must be more stringent

In the initial 'Request for Comments', QCA has observed the complex regulatory framework faced by the coal seam gas industry in Queensland, governed by seven separate items of legislation overseen by six different State departments. QMDC agrees the governance of the coal seam industry needs to be better coordinated with government departments. However, QMDC does not support the Department of State Development and Infrastructure playing a prominent compliance or oversight role. Compliance should remain with those Departments that have the most experience in this role and who have ready access to key information such as monitoring and baseline data, environmental authority conditions, environmental value data, research and scientific reports etc.

QCA has also noted that current regulation has developed in a piecemeal fashion; an issue that has been raised again and again by QMDC and other community groups and stakeholders. QMDC's many concerns and frustrations with the coal seam gas regulatory framework have been because existing legislation has been extended and new items of legislation have been enacted to regulate the industry without clear goals being communicated or a coordinated and collaborative approach taken.

QCA do not in this review highlight the limitations of their chosen type of regulatory practice and its assumption of a single regulatory goal, namely the reduction of red-tape. QMDC argues that multiple goals exist. Some of these include: long term protection and improvement of environment, ecosystem health and natural resources; long term socio-economic sustainability of rural and urban communities including the health of nearby residents and workers; the need to provide certainty for the communities that where natural resources will be impacted beyond their threshold limits, exploration and production of coal seam gas will not be allowed to occur in that area, region, bioregion or catchment; and effectiveness of approval systems and regulatory processes.

In light of this, QMDC argue for a greater depth of analysis as part of the review. QMDC asserts an assessment of costs needs to be provided as evidence that regulation is as financially burdensome as reported.

Techniques to determine this burden must be described as part of this review in precise terms so that the source data, calculations, formulas, assumptions or methodology relied upon in making this statement are able to be reviewed and analysed in terms of the accuracy of the models used and whether all relevant environmental and socio-economic factors have been considered.



The above information and other relevant data is urgently needed to analyse the cost of regulation to industry in light of the cumulative impact caused by the industry to community social and natural capital. Additionally the cost of regulation must be compared against the profits the industry and individual companies gain through the exploitation of public resource assets.

The cost of regulatory process to industry is only one component of wider socio-economic issues relevant to mining. Governments must also factor in regulatory burdens on landholders, which result in decreased productivity and efficiencies of existing farms or other businesses likely to be impacted. This, in QMDC's opinion, makes a stronger argument for no-go zones for coal seam gas mining, rather than the current position which promotes reduced regulation.

Lastly QMDC advocates for corporate transparency and accountability and the use of non-financial information in the review. The environmental and social performance of the sector has come under increased scrutiny from community organisations. There is also a growing worldwide push for the corporate sector to embrace the principles of 'corporate social responsibility' and 'sustainable development'. <http://www.iisd.org/business/issues/sr.aspx>

In QMDC's opinion, undertaking a comprehensive review of the State Government's regulation of the coal seam gas industry requires the QCA to:

- examine closely the industry's compliance records;
- analyse social and environmental damage costs;
- identify and assess any gaps in the identification and management of risk arising from coal seam gas exploration, assessment, production and rehabilitation, particularly as they relate to human health, the environment, soil and land condition; and water catchments;
- identify best practice in relation to the management of coal seam gas in close proximity to agricultural enterprises, residential properties and rural townships, and consider appropriate ways to address such interfaces;
- examine how the characteristics of the coal seam gas industry in Queensland compare to the industry nationally and internationally;
- examine real costs of regulation to the industry;
- examine profits gained through the exploitation of the State's natural resource assets; and
- make it mandatory for the industry to report on sustainability indicators.

Many environmental, economic and health challenges created by coal seam gas mining may effectively be managed through improved regulation. QMDC believes improving Queensland's current regulatory regime requires a commitment to significant ongoing research into the long-term and cumulative environmental and social impacts and how they are best regulated. This type of research is not apparent in the recommended changes to regulation.



2.2 Community confidence in the government's ability to effectively manage the coal seam gas mining industry is crucial

QMDC acknowledge that governments in Australia and elsewhere have become more active in regulating the coal seam gas industry, particularly in the areas of health and safety and environmental management. QMDC is concerned that improved practices made mandatory could fall victim to changes in policy directions and the relaxing of regulation. Community confidence in the government's ability to effectively manage the coal seam gas industry is crucial.

The coal seam gas review in NSW by Professor McKane, provides Queensland with some key insights. <http://www.chiefscientist.nsw.gov.au/coal-seam-gas-review>

Professor McKane has made 5 key recommendations, which are aimed at improving the information available to community and to build community confidence by assisting the NSW Government to show it has the intention and capacity to oversee a safe coal seam gas industry. The recommendations are:

1. The establishment of a regime for the extraction of coal seam gas that is world class, for example, by:
 - a. insisting on world best practice in all aspects and at all stages (exploration, production and abandonment) of coal seam gas extraction;
 - b. implementing mandatory high performance standards; and
 - c. rigorous enforcement of non-compliances and imposition of high fines or revocation of licences (if appropriate);
2. The development of the whole-of-environment data repository for all State environment data associated with water management, gas extraction, mining, manufacture and chemical processing activities;
3. The establishment of a pre-major-coal seam gas subsidence baseline across the State using appropriate data over the past 15 years to trace and address any significant cumulative subsidence;
4. Changes to coal seam codes of practice to require personnel working in operational roles to be subject to mandatory training and certification requirements; and
5. The expansion of the Government's research into the coal seam gas industry particularly in relation to sophisticated predictive underground models and cumulative impact assessment.

Within Australia, the coal seam gas industry has also been involved in controversy around issues such as fracking and land access rights.

http://dea.org.au/images/general/FA_Coal_Seam_Gas_05-12.pdf

<http://www.basinsustainabilityalliance.org/cms-assets/documents/87323-751623.information-for-landholder.pdf>

The industry's endeavours to counter these negative public perceptions by espousing the macroeconomic and social benefits of mining for Queensland communities, have failed to boost community confidence because the benefits in many cases have not seemed to outweigh the ongoing negative impacts of the industry.

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It is apparent, to QMDC, through our involvement and membership on the industry's stakeholder and community committees that even in the most progressive companies there continues to be a tension between the stated commitment to improving environmental and social performance and the traditional focus on production, profit and cost minimisation.

Trying to reconcile these apparently divergent imperatives by arguing that there is a strong business case for companies to improve their social and environmental performance, is one of the reasons QMDC seeks more stringent regulatory controls.

Internationally, the United Nations Environment Programme, is urging policy makers to address socio-economic and environmental issues: by integrating environmental, economic and social data for a proper assessment of environmental impact; by improving environmental governance – including accounting systems – to recognise the true value of natural capital and ecosystem services; and by implementing regulatory, market and information-based policies that aim to change human and corporate behaviour. [United Nations Environment Programme \(UNEP\). \(2012\) GEO-5 Assessment www.unep.org/geo/geo5.asp](http://www.unep.org/geo/geo5.asp)

The environmental impact of industry, especially pollution, has been subject to regulation for at least three decades, under the approach which is sometimes called 'command and control' regulation. <http://www.aic.gov.au/documents/B/A/0/%7BBA0FC2D0-B43E-4CB6-A5AD-95ACE70542AA%7DRPP57.pdf>

The command and control approach is typical to Queensland regulation in areas where standards are specified, and sometimes technologies. The coal seam companies must comply (the 'command') or be penalised (the 'control'). It commonly requires the coal seam gas companies to apply the best feasible techniques to minimise the environmental harm caused by their activities. In QMDC's opinion, the "command and control" regulation system has achieved some considerable successes, especially in terms of reducing the release of contaminants to receiving environments such as land, air and water. QMDC is therefore concerned by any suggestion by industry or QCA that this type of regulation is unfavourable because of its high costs, inflexibility, and diminishing returns.

QMDC is wary that QCA and the coal seam gas industry are overstating their problems with current regulation and are not building on substantial regulatory improvements. In QMDC's opinion, a focus on its limitations will only provide a partial policy solution. It is obvious the government's regulatory reform is taking place in a political climate of shrinking regulatory resources. This makes it difficult to design strategies capable of achieving results because of the absence of a credible enforcement. Extracting the 'biggest bang' from a much diminished 'regulatory buck' is not helping to build community confidence in the government's intention to safeguard public interests, current and in the future.

However, it is also clear to QMDC that "the low hanging fruit" of a command and control system have largely been picked, and that in an increasingly complex, diverse and interdependent society, current regulation may not be well-suited to meet many of the challenges which lie ahead. QMDC therefore recognise that a regulatory practice based on both a "carrot and stick" approach is needed.

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QMDC asserts that QCA should have consulted more widely because of the economic and political context of the red-tape reduction program. Natural resource management bodies, community and other key stakeholders have the capacity to help design regulation and alternatives to regulation in a manner that is both effective in protecting natural and social environments and efficient in that it does so at an appropriate cost to regulators and regulated enterprises.

2.3 Self – regulation is not appropriate for many coal seam gas mining activities

Maintaining that market-based regulatory compliance alternatives are capable of achieving the same, if not greater, environmental management as compared to strict regulatory controls is not fully supported by QMDC. The concept of controlling point and nonpoint sources of pollution through self-regulation, voluntary, incentive-based mechanisms, rather than implementing additional mandatory controls, is not appropriate for many coal seam gas mining activities.

From an environmental policy perspective, the increasing reliance on voluntary approaches raises a number of important issues. Not least, how do they work, where do they work, what are their strengths and limitations and how can they best be used within the overall framework of environmental policy design?

The Report, *Carrots and Sticks For Starters Current trends and approaches in Voluntary and Mandatory Standards for Sustainability Reporting* identifies a number of drawbacks and advantages with self-regulation. http://ec.europa.eu/enterprise/policies/sustainable-business/corporate-social-responsibility/reporting-disclosure/swedish-presidency/files/surveys_and_reports/carrots_and_sticks_-_kpmg_and_unep_en.pdf

This Report highlights for QMDC a number of key issues not discussed in QCA's Draft Report but which we believe are crucial in light of the recommended changes to regulation. The following limitations to self-regulation need to be more fully discussed and addressed as part of the review process:

1. "Conflicts of Interest: The same proximity that can help the self-regulator acquire useful information can be a disadvantage because of conflicts of interest. Knowing an industry better does not mean that a self-regulator will necessarily have the proper incentives to regulate it more effectively.
2. Inadequate Sanctions: The greater flexibility afforded to self-regulatory organisations also means they may have the discretion to administer only modest sanctions against serious violators.
3. Under-enforcement: Conflicts of interest and flexibility may also make it more likely that compliance will be insufficiently monitored. If industry interests are in conflict with societal interests, enforcement by self-regulators might be less than optimal overall.
4. Global Competition: In a global marketplace, an industry's collective interest may be defined by competition with foreign markets. If foreign markets are not equally burdened with regulation, then aggressive self-regulation could disadvantage domestic firms. This provides yet another reason to question whether self-regulators will make decisions that will benefit society.

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5. Insufficient Resources: Although the funding of self-regulatory bodies may not be susceptible to the whims of legislatures, underlying conflicts of interest could leave self-regulatory bodies with less than sufficient funding.”

http://ec.europa.eu/enterprise/policies/sustainable-business/corporate-social-responsibility/reporting-disclosure/swedish-presidency/files/surveys_and_reports/carrots_and_sticks_-_kpmg_and_unep_en.pdf

To make the recommended changes to coal seam gas mining regulation work it is critical that the necessary control, inspection and prosecution processes are in place. QMDC therefore submits for many of the coal seam gas mining activities mandatory standards should remain and be further developed.

At the very least self-regulation must include:

- Incentives for companies to report;
- Mandatory guidelines relating to performance; or
- Transfer the regulatory power to self-regulating authorities such as a diverse stakeholder panel whose statutes can either be voluntary or mandatory.

QMDC believe the Queensland Government should be increasingly concerned with sustainable development, inclusive economic growth, increasing transparency, and building social licence and trust within regional communities. Although an increasing number of companies and organisations want to make their operations sustainable, the Queensland government, in QMDC's opinion is yet to respond effectively to the external impacts of coal seam gas mining operations.

2.4 Mandatory regulations

QMDC supports mandatory regulations, especially those with an obligation to report. The Report, *Carrots and Sticks For Starters Current trends and approaches in Voluntary and Mandatory Standards for Sustainability Reporting* describes the following benefits of mandatory reporting:

1. “Credibility: The use of recognised practices and tools, or the publication of a sustainability report or equivalent that has been prepared using recognised guidelines should enhance the credibility of information provided in response to stakeholder concerns and interests.
2. Changing the corporate culture: Mandatory requirements foster openness and transparency with respect to sustainability issues previously lacking in corporate culture. Mandatory requirements would place Corporate Social Reporting issues, and social and environmental issues in particular, squarely on the agenda of corporations.
3. Incompleteness of voluntary reports: Voluntary reports often fail to address certain issues, notably on fundamental human rights issues and key aspects of a company's environmental performance.



4. **Comparability:** There is no standardisation of the information found in reports because of the varying choices and approaches of different companies. It is often argued that the voluntary nature, progressive character and number of standards envisioned in initiatives such as the Global Reporting Index and other national and international initiatives, are unlikely to result in the standardisation of sustainability reporting practices.
5. **Non-disclosure of negative performance:** Positive information and messages tend to be emphasised in most sustainability reports. The reports are also time and event specific. Firms may disclose information when it suits their interests, but not when it may negatively influence perceptions, or relate to future earnings and potential cash flows negatively (Walden and Schwartz, 1997).
6. **Standardisation:** The economic literature names another advantage of required disclosure that only arises if the legislator promulgates mandatory rules: the advantage of standardization. (Adams, 2002). This relates to dependability, often cited as one of the advantages of command and control regulation, namely the ability to specify expected behaviour. An investor must compare a number of investment alternatives before deciding on an investment. It is to the investor's advantage if the information relevant for the investment decision is presented in a standardised format that can be readily compared. Standardised formatting saves investors, communities, consumers and employees' time and money, and explains why listing prospectuses or annual reports should follow identical guidelines (Baums, 2004)."

http://ec.europa.eu/enterprise/policies/sustainable-business/corporate-social-responsibility/reporting-disclosure/swedish-presidency/files/surveys_and_reports/carrots_and_sticks_-_kpmg_and_unep_en.pdf

Coal seam gas mining operations requires the regulator to have comprehensive and accurate knowledge of the workings and capacity of the coal seam gas industry and individual companies within the industry. One size does not fit all. Tailoring regulation to a mandatory approach must therefore be careful not to undermine tailored responses to address, for example, site specific differences. The challenge for the regulator is to keep pace with rapidly changing circumstances and changing technologies. Mandatory types of regulation do not need to undermine innovation nor take away the incentive to go beyond compliance. It can, in QMDC's opinion, move from forcing a re-active, tick-box approach that would result only in more bureaucracy and filing of documentation.

The government's access to more detailed and current industry information is essential to stop government regulators playing "catch up." Establishing and resourcing stakeholder engagement forums where industry, government, natural resource management bodies and community can come together and discuss issues, mining operations etc and collaborate on solutions is urgently needed. Being closer to the action, will help both industry and government, to be better situated to identify potential problems and fix them. Governmental regulators must deal with politically unpopular or highly complex issues. The greater the collaboration and involvement of industry, government, natural resource management bodies and community in dealing with these issues and setting the rules, the more reasonable the rules are likely to appear to individual companies.

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2.5 Mandatory sustainability reporting

Establishing a mandatory sustainability reporting process as part of this regulatory review will help both government and industry to set goals, measure performance, and manage change. A sustainability report is capable of serving as the key platform for communicating performance information – both positive and negative – that is needed by coal seam gas companies themselves, and by all those who are affected by them.

Sustainability reporting is therefore a vital step for managing change towards a sustainable global economy – one that combines long term profitability with social justice and environmental protection.

While it is an increasingly popular practice, the uptake of sustainability reporting can be significantly boosted by policy, regulation, and other initiatives from both the public and private sectors.

According to the 2013 report, *Carrots and Sticks, Sustainability reporting policies worldwide – today's best practice, tomorrow's trends* produced by the United Nations Environment Programme (UNEP), Global Reporting Initiative (GRI), KPMG Climate Change & Sustainability Services and the Centre for Corporate Governance in Africa, less than 10% of the more than 45,000 publicly traded companies that are required to disclose their annual accounts, report on their sustainability performance. The writers of the report highlight the need for regulators to use the current impetus to motivate or mandate sustainability disclosure. <https://www.globalreporting.org/resourcelibrary/Carrots-and-Sticks.pdf>

UNEP, for example, has promoted sustainability reporting for private and public institutions along globally applicable guidelines, and works in close cooperation with the GRI, the United Nations Global Compact, the International Integrated Reporting Council, and others, to help companies better understand and address their integrated environmental and social impacts. UNEP supports increased sustainability reporting for investors to use in financial decision-making. UNEP promotes life cycle-based methodologies such as resource footprinting, science-based information on critical resource flows, and capacity enhancement in developing and emerging economies.

The Carrots and Sticks Report emphasises that the role of regulation is more critical than ever before. "Regulation has to raise the bar in terms of minimum disclosure levels on performance, whilst helping to scale the business case and new standards of integration. The role of stock exchanges in emerging markets in driving self-regulatory standards is also bringing key insights. One is ways of aligning the content and timing of sustainability and financial reporting. Another is the central role of governance, including the fundamental values of honesty and accountability. Report quality, the disclosure of information relevant to key stakeholders such as investors and employees, and comparability of reports can and must be improved. Sustainability reporting is a key instrument for further promoting responsible decision making and behaviour, and for driving corporate transparency. Moreover, sustainability reporting plays a critical role, under the right conditions, in ensuring the private sector's contribution to sustainable development." <https://www.globalreporting.org/resourcelibrary/Carrots-and-Sticks.pdf>

QMDC assert that improved regulation for the industry requires a commitment to sustainability reporting. This we believe is not recognised within the QCA's Draft Report.

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Regulatory reform needs a collaborative response from community, corporate and government stakeholders to advance sustainability reporting as a key tool to manage coal seam gas mining.

Sustainability reporting has become a listing requirement on several stock exchanges in non-OECD countries. The United Nations is now also asking governments to stimulate sustainability reporting by developing best practice and smart regulation. Internationally, in their introduction of policies, regulation and guidelines, governments are striving to harmonize the use of multiple frameworks.

<https://www.globalreporting.org/resourcelibrary/Carrots-and-Sticks.pdf>

QMDC believes these global trends support a need for this review to consider sustainability reporting as a vital means for tackling the issues referred to above. Sustainability reporting is increasingly a core topic in international forums and was afforded unprecedented attention at the June 2012 United Nations Conference on Sustainable Development (Rio+20). At Rio, governments agreed on the importance of corporate transparency and sustainability reporting, and that they have a role to play in advancing it, as stressed in paragraph 478 of the outcome document *The Future We Want*.

<http://sustainabledevelopment.un.org/futurewewant.html>

3.0 Specific comments

3.1 Draft recommendations

5.2 1 Standard Conditions be:

(a) developed for application to CSG production activities and coordinated projects to enable deemed preapproval where prescribed environmental requirements are met

(b) outcome-focussed and aligned with recognised international/national standards for environmental management where relevant

(c) updated periodically to reflect relevant developments in environmental management and practices, in consultation with industry.

QMDC supports in part this recommendation. QMDC recommends exploration activities be included with production activities. Consultation should also involve community stakeholders and this process be resourced appropriately by government and industry. QMDC is concerned that the savings to industry indicates an assumption that standard conditions are less stringent than existing regulations. Indicative government savings of \$0.54m would appear to assume there will be no costs in developing and refining standard conditions as a result of monitoring results, improved knowledge on what constitutes best practice and alignment to national/international standards.

QMDC asserts there are other measuring tools that should be used to weigh the costs and benefits e.g. regional natural resource management plans; threshold limits, cumulative impact assessments. QMDC also believe an assessment of the whole life cycle of a mineral resource when determining the cost of regulation and the benefits of its exploitation is needed. QMDC strongly recommend that coal seam gas exploration and production activities should not be permitted and limited in areas, regions, bioregions, and catchments where the environment and natural resources and those communities dependent on them are adversely affected (including human communities).

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This is particularly the case when environmentally sustainable farming practices based on precision agriculture and conservation agriculture are involved.

Upper Condamine aquifers, the Great Artesian Basin (GAB) and the Murray-Darling Basin are already recognised as the most susceptible aquifers in the country so added impacts on their already existing stresses are likely to be major. The GAB underpins the economy of inland Queensland. Without it most outback towns would cease to exist and the pastoral industry would face much more risk and volatility. This would reduce the resilience of the agricultural industry of Queensland. It would also further undermine the Queensland Government's policy of doubling agricultural production by 2040. The strategic importance of the GAB, means surely the precautionary principle applies in this case. There are far too many people questioning the impact of coal seam gas mining on the GAB to ignore this concern.

Government, industry and regional communities should be looking at all avenues to value add it within Queensland's borders to benefit Australians and Queenslanders rather than overseas markets and competitors. USA provides gas to its domestic users at a substantial discount to the international price to give its domestic manufacturers a competitive advantage. Australia's support of a "free market philosophy" puts long term sustainable domestic manufacturers and Australian jobs at a significant disadvantage.

5.3 2 Model Conditions for CSG production activities be outcome-focussed and updated periodically in consultation with industry, to reflect relevant developments in environmental management and practices.

QMDC recommends exploration activities be included with production activities. Model conditions to also accommodate cumulative impacts and consider legacy issues associated with coal seam gas mining industry exploration activities e.g. inter-aquifer connectivity due to exploration bores (coal and coal seam gas). QMDC believes it is likely there are many exploration bores that do not comply with existing standards. Consultation should also involve community stakeholders and this process be resourced appropriately by government and industry.

The achievement of outcome based requirements must be able to be measured through specific performance indicators; and there should be independent verification both of the functioning of the environmental management systems and of environmental performance under it, with the results available both to the regulator and stakeholders such as community groups (transparency).

5.4 3 A single financial assurance regime be established and administered by EHP, with revised arrangements to incorporate:

- (a) obligations for rehabilitation which are linked to the risk of default by operators**
- (b) guiding principles that are risk-based and provide suitable incentives for compliance with rehabilitation requirements in a way which minimises costs for industry and the government**
- (c) flexibility for CSG operators to utilise a suite of options to meet their financial assurance obligations in a cost effective way, including through options such as security bonds, company-specific trust funds and insurance bonds.**

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QMDC supports the State Government's need to secure a significant bond for implementation of a coal seam gas project to safeguard against risk associated with the exploration and production activities and also the collapse/abandonment of companies and/or the industry. This security must also consider the loss of rates, and increase of costs to local governments for management of infrastructure, resources and services as a direct result of mining and energy industry development. The security must also be considerate of the unique issues of smaller rural and residential holdings and the compounded impact to communities and natural resource values of the area.

Additionally a pre-determined percentage of the royalties received from the coal seam gas mining industry should be invested in natural resource management within the originating region.

QMDC submits the "commercial-in-confidence nature of financial assurance" should not be allowed and should be disclosed to regional communities on how coal seam gas companies will fulfill this obligation adequately. Obligations for rehabilitation need to be clearly defined, and assurance realistically budgeted for.

The proposed regulatory change should provide adequate assurance to regional communities that the financial assurance required by EHP will take into consideration all costs related to the existing and proposed petroleum activities, for example:

- the impacts of climate variability and extreme weather events on the project's ability to fulfill environmental management plans, rehabilitation strategies and EA conditions;
- the temporary and permanent loss of ecosystem services;
- temporary and permanent surface and groundwater contamination;
- any health impacts caused by, for example, mental health issues, respiratory problems resulting from long term exposure to contaminants released to the air; and
- potential impacts on the socio-economic well-being of regional communities caused by unsustainable coal seam gas practices, both local and global.

5.5 4 The Manual for Assessing Hazard Categories and Hydraulic Performance of Dams be amended to align dam requirements for the CSG industry with the requirements applying to other industries.

QMDC is concerned that this recommendation, assumes that the amended requirements adopted will be the least demanding of the existing range of requirements. QMDC believes this has obvious risks and should be rationalised against the reasons that have led to the current tighter restraints. QMDC only supports this recommendation if the alignment to other industries does not allow the coal seam gas industry to relax its management and assessment of risks and hazards.

Additionally QMDC recommends the following matters be considered:

- that all dams, evaporation ponds and drill sumps be constructed, maintained and fenced to exclude wildlife/fauna.



- that all drill sumps be required to be lined, monitored and contaminated waste removed off site.
- that rehabilitation to a final land-use for an aggregation or a brine dam is clearly described.
- that regular checks of dams are required to ensure compliance with conditions. If conditions are not met, non-compliance should be rectified immediately.
- that thresholds are described in order to trigger immediate rectification measures.
- that climate variability needs to be specifically addressed in design plan.
- that the operational rules for dams and integrated dam systems are made publically available and approved before development.
- that a trigger tolerance level below mandatory reporting level is identified so as to provide for time lag affect and provide adequate warning.
- that sediment testing is required.

5.6 5 The Guideline being developed to define Category C ESAs, including the treatment of state forests and timber reserves, be reviewed by 31 January 2017 by EHP in consultation with industry.

QMDC does not see how the undertaking of a review can save money (\$0.10 to 0.15) for the government. Consultation should also involve community stakeholders and this process be resourced appropriately by government and industry.

5.7 6 Reporting and notification obligations (including the timeframes for reporting) of incidents of environmental harm be aligned with their risk and consequences.

5.7.7 Reporting and notification obligations for similar risks be applied consistently across Environmental Authorities.

QMDC asserts that reporting and notification obligations must be improved in order to address identified major flaws of conventional risk assessment. QMDC argues that what the regulations may deem as acceptable levels of risk does not always align to current public concern and the value communities place on preventing harm, minor and serious, to the environment, to themselves, their families and communities, to the future generations.

The predicted savings to government (\$0.10 to 0.15m) seem to assume that there will be no initial costs related to reviewing consistency and accuracy of risk assessments and any ongoing compliance or non-compliance requirements.

Risk assessment assumes humans and the environment can absorb a certain amount of pollution and render it harmless, known as “assimilative capacity”. QMDC is concerned that eliminating risk altogether is not the primary goal of traditional risk assessments within the industry, instead it is to mitigate, manage and reduce risks, not to prevent harm.

Risk assessment focuses on quantifying and analysing problems, rather than solving them. It asks, “how much pollution is safe or acceptable; which problems are we willing to live with; how should limited resources be directed?” It does not ask, “how do we prevent harmful exposures; move toward safer and cleaner alternatives; involve society in identifying, ranking, and implementing solutions?”

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Risk assessments use different models with high uncertainty. Current risk assessment is based on many different assumptions about exposure, dose-response and the extrapolation of results from animals to humans. In one exercise, 11 European governments established teams of scientists and engineers to work on a problem concerning accidental releases of ammonia. The result of the exercise was 11 different risk estimates ranging from 1 in 400 to 1 in 10 million. The organisers concluded that “at any step of a risk analysis, many assumptions are introduced by the analysts and it must be recognized that the numerical results are strongly dependent on these assumptions.” (Contini et al. 1991, *Benchmark Exercise on Major Hazard Analysis*. (EUR 13386 EN Commission of the European Communities, Luxembourg))

Terry Hardy in a report entitled *The Role of Human Factors in Safety Risk Assessment* (Great Circle Analytics, June 1, 2010) retrieved from <http://www.gcirc.com/images/role.pdf> draws attention to a number of factors that can negatively affect the integrity of a qualitative risk analysis.

Hardy states that researchers have shown that a number of biases affect how humans make judgments in the face of uncertainty. Such biases can affect risk assessments. Hardy lists some of those biases as follows:

- *Availability bias*. Availability bias is overestimating the available information.
- *Confirmation bias*. Many studies have shown the propensity for humans to use existing information, and neglect nonconforming information, to confirm a pre-existing assumption, whether that assumption is true or not. In other words, people tend to see what they want to see. If one believes that tank overpressure will never be a problem, then they will search for all the ways a tank cannot possibly rupture and ignore other problems such as leakage at interfaces.
- *Hindsight bias*. Hindsight bias leads people to exaggerate in retrospect what was known in advance, often oversimplifying the chain of events. For example, if one knew from an accident investigation that structural failure was a contributing factor, then they might assign a high likelihood in a new hazard analysis to structural failure because of that investigation, when in fact a number of other random events may have also occurred to cause that particular accident.
- *Insufficient adjustment bias*. Studies have found that the final subjective probability can be highly dependent on the initial value chosen. For example, if the initial likelihood value is selected to be “very low,” but subsequent information shows that the likelihood of an event is actually high, the bias is to allow the likelihood to remain at the “very low” end of the scale, possibly raising it a bit to “low” based on the new information.
- *Representative bias*. This bias refers to overemphasizing similarities. For example, if a steel tank showed a low probability of a rupture based on previous tests and analyses, then the inclination is to assign the next tank under analysis that same likelihood. However, that next tank might be made of composite materials that have not been tested under similar conditions and therefore may not truly be similar to the previous tank. Representative bias can lead to what is known as base-rate neglect, where actual data and failure frequency are ignored.

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- *Insensitivity to sample size.* This bias is similar to availability bias in that it implies an overreliance on a limited amount of data. It also comes from a philosophy that if something has worked before then it will work again, even if there are limited data to back up that conclusion.
- *Overconfidence bias.* Overconfidence is the tendency of humans to exaggerate their knowledge of uncertain events. Humans tend to become especially overconfident if they have had a string of successes without failure. For example, studies have shown that most people think they are better than average automobile drivers, in part because they have not been involved in a serious automobile accident. Their overconfidence is based on a series of successes and lack of feedback.
- *Organizational and personal bias.* Risk assessments can be biased by organizational or personal pressures. Most of the time this bias does not reflect a situation where fraud and abuse are present (although it can). Rather, this is usually an attempt to make an unacceptably high risk more acceptable, because higher risk requires justification and acceptance at a higher management level. For example, if a risk is shown as “catastrophic” and “high,” a panel may find ways to convince itself that the likelihood is something lower to avoid additional justification to senior management.

Hardy also identifies process failures in addition to biases that may affect a risk assessment:

- *Lack of standardization of risk matrices.* One problem area in risk assessment efforts is that different risk acceptance matrices are used within industries and between industries. The wording is usually different on these risk matrices, leading to potential confusion.
- *Misunderstanding about what the likelihood and severity definitions mean.* Five people could have five different interpretations of the likelihood and severity definitions. If there is not specific guidance and training on those meanings, with frequent refreshers, then everyone in a given room could agree on a risk level, but could in fact be agreeing on different things. Even if the same risk matrices are used within one organization, different projects can assign their own meanings. This problem becomes much worse when the likelihood definitions have no probabilistic values assigned. Even when probabilistic values are assigned to the likelihood definitions, there can be confusion if no units (e.g., likelihood per day, per hour, per second) are assigned to the probabilities. In addition, applying likelihood definitions meant for continuous operation based on time (such as in a chemical plant) may be incompatible with operations that are discrete (such as a rocket launch).
- *Making unrealistic assumptions about the system and operations.* Hazard analyses typically assume that the quality control procedures are adequate to assure that the design conforms to requirements, that testing will adequately verify the operation of the system, that the operators are trained and capable, and that operational procedures are clearly defined. Analysts must make assumptions or the analysis can become unreasonably large and unwieldy, but these assumptions may be incorrect and therefore bias the results of the assessment.

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- *Focusing on the worst credible event and ignoring more likely but less severe events.* System Safety analyses tend to focus on the worst credible event, and then determine risk based on the likelihood of that event. However, because risks are a combination of likelihood and severity, risks with less severe consequences cannot be ignored. For example, tornados may occur infrequently enough in some areas of the country to justify acceptance of the risk of tornado-level winds in structural design. But high winds with less strength may actually produce damage more frequently, requiring additional structural margins.
- *Failure to recognize when risks are not independent.* Correlated causes can lead to a higher overall system risk, and a failure to understand when causes are dependent can lead to an underestimation of risk.
- *Failure to realize that risks tend to be additive.* In reality, accidents occur because a number of unlikely events occurred in concert, usually involving hardware failures, human error, and procedural failures. When considered individually, these risks often are small, but when added together they create one large risk to the system. Risk analyses often focus on individual hazard causes and therefore may underestimate the risk to the system. Sometimes this process failure is referred to as conjunctive distortion, which is misjudging the probability of combined events relative to their individual values.
- *Failure to measure the effectiveness of the method.* Most quantitative models are validated against real data. However, qualitative methods are rarely validated. Although some organizations are interested in such an activity, resources are usually not available to compare the qualitative analysis to results in the field, often because the program has ended or because the system is operational and precious resources are spent running that system.

Personnel and organisations charged with developing and evaluating the risk assessments can also affect the quality of the outcome.

- *Lack of training and experience with risk assessment methodologies.* Sometimes the organization performing the risk assessment, or even the one evaluating the results, has little experience with that process. Inexperienced analysts may complete the analysis procedure, but they may not understand the significance of each step. In these cases parties can walk away thinking they have completed an acceptable safety analysis and review, when in fact no one truly understood what they had just analysed or the implications of the results. This can lead to a significant underestimation of the actual risk.
- *Only relying on experts with extensive experience to dictate the risk assessment.* While using inexperienced personnel can be a problem, relying on experts can also provide a false sense of security. Experience is a tremendous help when trying to perform risk assessments. However, in addition to the biases described above, there are some caveats with regard to relying on expert assessors:

Experience is based on one's memory of events, and people tend to be very selective of what they remember. What one decides to conclude from their experiences may be based on emotion or faulty logic.



Experience may be based on internal processing, and unless one is exposed to reliable feedback, they may actually be learning the wrong lessons.

Experience may not be applied consistently.

- *Failure to include the safety and management culture in the assessment of risk.* Evaluating the management culture and how that culture influences the assessment and reduction of risk can be difficult. But a failure to include management and organization factors in the assessment could result in a gross underestimation of the risk, as evidenced by a number of accidents with root causes tied to organizational factors.

QMDC recommends that the following of Hardy's suggestions to improve qualitative risk assessments are worthy of serious consideration to improve the proposed regulation:

- *Measure the effectiveness of the risk assessment effort.* Engineers and scientists should not assume that their approach to risk assessment is valid. Questions to be considered are: do the risk assessment efforts work, would anyone know if they didn't work, and if they did not work what would be the consequences. Risk assessments should be subject to the same rigor as other engineering efforts. Resources should be made available to determine whether the likelihoods and severities identified in the qualitative analyses are consistent with the experience in the field and to learn if safety engineering and management are weakening.
- *Insist on quantitative bounds for qualitative likelihoods and severities.* Efforts should be made to justify that the risk falls within quantitative bounds through additional analyses, including quantitative assessments. Even with quantitative bounds on hazard likelihoods there can be misinterpretations, but without them there is no basis for the assessment.

Similarly, it is important to understand the potential for large numbers of casualties and large property and environmental losses. Therefore, efforts should be made to perform quantitative consequence analyses to determine severity for potentially catastrophic risks.

- *Train analysts and evaluators on the meanings of qualitative likelihoods and severity classifications.* Training is essential to achieve a mutual understanding of the meanings of the classifications, especially where terms such as "frequent" or "critical" are concerned. This training does not have to be extensive, but without an opportunity for mutual understanding, the risk assessment effort is bound to be inconsistent and could lead to a gross misunderstanding of the risk.
- *Train analysts and evaluators on the potential biases in the process.* It is also important that analysts and evaluators understand the implications of intentional and unintentional bias and their own perceptions of risk. Biases are, in essence, mental shortcuts used to assess risk under uncertainty, and not all shortcuts are bad - "Garbage in, garbage out" is one such shortcut that warns against representative bias. But by understanding these biases we can guard against the potential for overconfidence.

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- *Explicitly state and document assumptions.* Although assumptions are necessary to conduct any analysis, it is important for all members of an organization to understand, and agree to, the assumptions and the limitations in that analysis.
- *Include management and organizational factors as potential causes in system hazard analyses.* History has proven that cost, schedule, and management factors have the potential to lead to accidents. Although difficult to measure, and sometimes difficult to control, explicitly detailing these factors will bring this risk to the attention of decision makers.
- *Analyse risk individually for each cause and for each consequence.* Decomposing the risk allows a more complete and accurate picture of the system risk. Risk should be analysed for each cause, and for each phase.
- *Incorporate methods that use realistic models of risk.* Consideration should be given to accident models that take into account interdependencies of individual risk, recognizing when common causes can defeat redundancy and increase risk. Risk assessments should also reflect the reality that small risks can add up to create a hazardous condition, and analyses should include the use of risk summation and cumulative risk approaches. Therefore, a risk assessment should not only decompose risks, but also consider ways to “roll up” risk to determine cumulative effects.
- *Do not rely solely on scoring methods for safety risk assessment.* A major reason that scoring methods such as the risk acceptance matrix are used is because they are perceived as being easy to implement. In fact, if done correctly, risk assessment is a difficult and complex process. Therefore, in the face of difficult decisions on complex systems, decision-makers should not only rely on qualitative methods. Quantitative risk assessments should be used to verify the likelihood estimates, at a minimum, to assist in those decisions.

QMDC argues that more effort is required by coal seam gas companies to work on risk management and contingency planning with their neighbouring communities. A model for good practice can be taken from the Sustainable Development Framework (the Framework) of the International Council of Mining Metals (ICMM).

Awareness and Preparedness for Emergencies at Local Level (APELL) is a tool designed to bring people, principally company staff, community representatives and local authorities, together to facilitate effective communication about risks and planning for emergency response.

In 2003, ICMM considered that it was necessary to take the APELL process further by analysing emergency preparedness and response capabilities within both its corporate and association membership. This assessment highlighted the gaps in emergency and contingency planning and management.

The assessment produced a report entitled International Council on Mining and Metals and United Nations Environment Programme (2005), *Good practice in emergency preparedness and response*. It encouraged the members of ICMM to commit themselves to implementing certain good practice principles. These include a principle that refers to the need to “inform potentially affected parties of significant risks from mining, minerals and metals operations and of the measures that will be taken to manage the potential risks effectively” and to “develop, maintain and test effective emergency response procedures in collaboration with potentially affected parties”. Other relevant principles include a commitment to “seek continual improvement of our health and safety performance”, and a commitment to “engage with and respond to stakeholders through open consultation processes”.

An assessment of the contingency and emergency plans of ICMM members highlighted gaps which in QMDC’s opinion also exist in current coal seam gas mining Environmental Authority conditions, and if filled, would help bring regulations up to the level of best practice.

The principal gap relates to the involvement of local people in the development of an emergency plan. This is the gap that APELL was meant to address for ICMM. Results from the ICMM assessment are valuable lessons for the regulator.

Local emergency response organisations were involved in the planning process and participated in crisis simulation. The people who might be most affected by an emergency that goes beyond site boundaries – neighbouring communities – were however apparently consulted in only one instance. Other gaps existed in the low level of awareness of the risks posed by neighbouring operations and, at the operational level, in reliance on HSE staff for the preparation of the emergency plan. It is evident, too, from the analysis of strengths and weaknesses that the standard of emergency preparedness varied across the industry.

“For, almost, every strength reported, by any one operation or corporate centre, there was an equal and opposite weakness reported elsewhere.” 94% of respondents tested their plans annually, however “the duration of testing was 15 minutes to 72 hours, with 31% of the sample reported a time of less than 1.5 hours.”

“The experience of ICMM’s partner in this project, UNEP, points to four other areas that need to be highlighted: the control of offsite transport, the delivery and on-site management of hazardous chemicals used in substantial quantity, the risk of significantly greater effects from failure as the industry’s operations increase in scale, and the latent liabilities that remain, particularly with dormant waste repositories, when operations have closed or will close in the future.”

An expression of commitment to zero harm to the environment and people should be the starting point for QCA and set out as formal standards, guidelines or procedures. Standards on *Crisis and Emergency Management* and also standards on *Incident Reporting and Investigation and Communication, Consultation and Participation* are important because they draw on the APELL principle of relating to the community in all that an operation does, but particularly in the context of emergencies.

Other business-based and operational documents must back up these management standards e.g. an asset protection guideline that sets out when and in what time period each level of the organisation is engaged in an event, depending upon its severity.

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This upward reporting of an event at the earliest opportunity within a specific time frame is important if it is to be managed in the most effective way. This enables the appropriate deployment of skilled and specially trained resources when they can be of most assistance. It is easier to save life, protect the environment and minimise damage to property by early intervention. It is difficult to catch up when harm has been done.

In QMDC's opinion, the regulation therefore needs to require a high-quality emergency preparedness model to be adopted, and that this involves the company and the local community, as represented by the neighbours, local emergency response teams, the local government and nongovernmental organisations with specific interests in the area. To have a chance at avoiding emergencies or coping with them with minimum consequences, each party must recognise the other's interest and be prepared to work together to bring about the best solutions possible.

QMDC asserts government and industry need to resource local Risk Assessment, Contingency and Emergency Planning Coordinating Groups to assess the potential severity of the impact for each possible accident, such as:

- the size and nature of potential area affected;
- the number of people at risk;
- the type of risk (physical harm, toxic, acute, chronic);
- long-term residual effects;
- impacts on environmentally sensitive areas;
- financial consequences; and
- consequential secondary risks and impacts.

The probability of occurrence should be assessed, either qualitatively or using a quantitative assessment. Points to consider include:

- the probability of individual events;
- the probability of simultaneous events (such as an earthquake resulting in rupture of a pipeline); and
- complications from unique environmental considerations, such as severe terrain, location on a floodplain, fire hazard conditions and so on.

The Co-ordinating Groups could then plan for key scenarios that could reasonably be expected to occur or that the community is most concerned about and use these to improve the regulation. As the hazards are identified and their probability and consequences are examined, some areas of risk may be identified that can be readily eliminated or cost effectively pursued. Appropriate action should be taken to reduce or manage those risks through changing operating practices, upgrading equipment, training, changing the chemicals used, and so on. The emergency planning process complements but does not substitute for risk management and risk reduction – action must also be taken on these fronts.

QMDC acknowledges that a specialist team or other group may be required to recommend risk reduction options rather than the Co-ordinating Groups, but results, plans and progress should be reported back to the Groups.



Key elements and details that need to be covered in an emergency response plan include:

- established criteria for triggering the plan and alarm signals, with backup;
- clear reporting procedures both internally and upward in the organisation, and externally to appropriate authorities;
- communications equipment that can reach all participants, such as mobile phones, pagers, short-wave radios, depending on location;
- media contacts and a media relations strategy, including relevant descriptive material of the operation;
- specialised hazard monitoring and training, such as dealing with chemical fumes or water pollution;
- adequate emergency equipment for spill containment or collection, such as additional supplies of booms and absorbent materials;
- alerting the public and co-ordinating evacuation using sirens or other warnings, with well-rehearsed warnings, evacuation procedures and easily reached shelters;
- clear roles of participants in different areas of response, such as firefighting, community protection;
- alternative drinking water supplies in case usual supplies are contaminated;
- rapid test kits for chemical spills;
- readily available access to information on dealing with chemical hazards; and
- examination of options for clean-up following the accident – both immediate actions to be taken and the approach that would be taken to a longer clean-up programme.

Reviews need to be regularly carried out to help determine whether the regulation addresses identified risks and emergency scenarios adequately.

The regulation needs to ensure emergency or contingency plans will be integrated to:

- ensure that any newly developed plan is consistent with any regional or national disaster plans;
- ensure its consistency with legislation and any codes that are relevant to emergency planning and community engagement;
- check that the plan is robust in relation to all previously identified risks and emergency scenarios and in relation to response tasks, resources, roles and accountabilities to ensure there are no weak components.

A clean-up after an emergency should be considered in the planning process to avoid problems later on. Collecting base-line data relevant to the risk scenarios is one important element. Another is to have considered in general terms the logistics, benefits and downsides of alternative clean-up and remediation strategies so that immediate action taken in the course of an emergency does not complicate the longer-term approaches to effective remediation. Clean-up operations can themselves be dangerous. The work will not be a part of any normal routine — major truck movements in unfamiliar territory, for example, or working on incompetent ground — and while it may have the appearance of the familiar, it will be characterised by its own particular hazards. Risk assessments are necessary when considering the options.

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The regulation needs to ensure that an integrated plan, as agreed by the Co-ordinating Groups, needs to be documented in final form and endorsed by the community and the local government or other appropriate agencies. The Co-ordinating Groups should ensure that the plan is well tested. Initial testing should take place without involving the public, to uncover deficiencies in coordination among groups and in the training that has taken place so far.

<http://www.unep.fr/shared/publications/pdf/WEBx0118xPA-GoodPracticeEN.pdf>

5.8 8 The Commonwealth and Queensland governments:

(a) develop a common management approach to environmental policy

(b) execute a bilateral agreement which aligns their respective regulatory requirements, with arrangements to be agreed for the State to be accredited to administer implementation and compliance.

The indicative saving to government (\$0.45m) assumes there are no costs in developing management strategies and bilateral agreements. QMDC suggest that the Murray-Darling Basin Authority process demonstrates this initial cost and ongoing administration is significant.

5.9 9 Offset arrangements be revised to focus on the achievement of environmental outcomes.

5.9.10 Greater flexibility be provided for CSG operators to meet offset requirements, including through payments to an accredited offset provider or company-specific fund.

QMDC supports the revision of offset arrangements.

Environmental issues facing the Queensland Murray-Darling Basin involve significant challenges and constraints for natural resource managers, landholders and the coal seam gas industry.

QMDC and the communities it works with recognise the need to protect now and in the future valuable natural resources from actual and potential threats and losses resulting from commercial development.

QMDC operates from the premise that the sustainable management of this region's natural resources and assets requires natural resource management practices that enhance and balance the environmental, social, cultural and economic well-being of its communities.

Environmental outcomes are therefore not just about protecting particular species of flora and fauna (e.g. threatened species). They are also clearly about maintaining functioning ecosystems that support all species, including humanity.

QMDC supports the use of environmental offsets if they comprehend and mirror the fact that the Queensland Murray-Darling Basin has already been significantly degraded as a result of past human impacts, and that actions are required to reverse this trend.

QMDC's position places limits on offsets so that they cannot be used to facilitate, or attempt to facilitate, a development outcome or allow development to proceed in areas which it would presently not be able to proceed.

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QMDC promotes the use of environmental offsets where developers have firstly made a commitment to avoid impacts to the natural resources of Queensland Murray-Darling Basin to the greatest extent prior to offsetting.

Environmental offsets should therefore only be considered when all steps to avoid and minimise adverse environmental impacts have been taken. QMDC's overall aim is to promote better land-use planning to avoid land use conflicts.

Where there are unacceptable ecological impacts, environmental offsets should not be used to rescue the proposed development and the development should not proceed.

Environmental offsets must be established prior to any proposed development which may result in an adverse environmental impact.

QMDC acknowledges the application of the public interest test in relation to development and offsets. The overarching principle of the test allows development to proceed because there is an overriding need for the development in terms of public benefit and no other site is suitable for the particular purpose.

QMDC asserts that each proposal, whether it be mining, residential, commercial etc should still be assessed on its merits to determine the degree of community advantage.

A public interest test although it provides many challenges, should provide an opportunity to the Government and its officers to make basic human rights meaningful to the Queensland Murray-Darling Basin communities so as to assure them social and economic justice, alongside environmental sustainability.

Where adverse environmental impacts cannot be avoided, such impacts must be minimised through appropriate and effective mitigation measures.

Environmental offsets must deliver a 'like for like' ecological equivalence whilst also providing greater environmental quality and quantity for the Queensland Murray-Darling Basin. The size of the offset area should for example be larger than the area to be cleared for development. The offset area must also include the opportunity of increasing the habitat and the populations of any affected species and enhance the functioning capabilities of an ecosystem.

This second option requires developers to demonstrate and document extensively the measures they will take e.g. environmental management plans, monitoring, mitigation, environmental audits.

QMDC as a last resort supports environmental offsets where it can be proven that there will be no net losses at an absolute minimum. This option is only available when the above two options have been explored to their full capacity.

Offsets must also be protected in entirety and not be able to offset themselves in the future.

Offset criteria must be based on peer reviewed scientific research. The aim of such science would be to produce information from data gathered from the Queensland Murray-Darling Basin region to understand the potential consequences of actions and not advocate for commercial interests of key stakeholders. Offset criteria must meet standards of scientific rigour, technical adequacy, and truthfulness; and be perceived as just and politically unbiased.

Conservation of the region's natural assets and resources is fundamental to regional natural resource management plans, especially vegetation and biodiversity that are threatened.

The communities of the Queensland Murray-Darling Basin must be empowered to direct the scope of offsets on the basis of their local knowledge and experience.

QMDC's work is guided by valuing community input and participation in natural resource management. Communities, landholders and natural resource managers should be involved as fully as possible in all stages of environmental decision-making. Environmental decision-making should be open and transparent. QMDC encourages community involvement at the *earliest* stages of environmental decision-making, such as setting of objectives for regional and/or site specific offsets.

QMDC believes that successful community participation requires effective communication between the regulator, developers, communities, landholders and other key stakeholders.

Feedback to communities at key stages in the offset decision-making process is essential: landholders and natural resource managers must know that their aspirations, knowledge and views have been considered and heard, in order to produce beneficial outcomes for all stakeholders. Feedback also needs to include advice as to how community aspirations, knowledge and views have been considered and how they will be incorporated into planning or conditions for offsets.

Communities must be well-informed for public participation to be effective; information must be readily obtainable and inexpensive. Communities also need to be provided with scientific and technical information and assistance to analyse it if necessary.

QMDC supports a review if it seeks to achieve the following outcomes:

- implementation of the principles of ecologically sustainable development and a balance of social, economic and environmental values;
- legislative compliance and due diligence;
- resource conservation;
- prevention of pollution and the elimination or reduction of waste;
- protection of ecological systems, landscapes and the conservation of species and genetic biodiversity;
- protection of cultural heritage, indigenous and built heritage;
- informed and transparent decision-making; and
- continuous improvement.

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Environmental offsetting is a tool to enable QMDC and the communities it works with to manage the natural resources of the region and contribute to the environmental performance of developers within the region. Integrating environmental issues and responsibilities into the developer's business and operations encourages collaborative efforts to protect the region's natural resources.

QMDC considers that all business and government organisations working within the Queensland Murray-Darling Basin should develop and maintain environmental ethical practices that are appropriate to their functions and activities. QMDC welcomes the opportunity to develop the use of environmental offsets involving the coal seam gas industry and other stakeholders so as to evolve natural resource management practices based on core principles.

QMDC considers that the effectiveness of environmental offsetting is dependent upon the involvement of stakeholders and the implementation of regional natural resource management plans in order to achieve natural resource management performance targets.

QMDC considers that while it is appropriate for environmental offsets to take a variety of forms, depending on the circumstances of the environmental impact, all offset proposals and their associated offset arrangements should aim to include the following elements:

- the offset reaches its intent
- the developer's or company's environmental best practice policy;
- identification of goals, objectives, performance indicators and targets and development of plans for achieving these;
- involvement of key stakeholders in the development and implementation of policies and targets and ongoing review of the management of the offset;
- integration of environmental management into business planning and investment strategies;
- adequate resourcing to achieve desired environmental outcomes and the implementation of the offset;
- clearly defined responsibilities, authorities and accountabilities;
- training programs to provide employees with the knowledge, skills and competencies required to achieve environmental targets and outcomes;
- detailed work practices, procedures or processes to manage and reduce the future environmental impacts of the company, to understand the life cycle implications of the company's products and services, and to take advantage of environmental opportunities;
- regular monitoring of environmental performance and environmental best practice policy implementation;
- internal and third party audits of progress in achieving the desired environmental outcomes and offset implementation;
- development of reporting systems to include regular environmental reporting internally and externally to stakeholders and reporting against the performance indicators; and
- regular review and continuous improvement of the offset and of the company's environmental performance.

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6.2 11 Part 9A of the *Water Supply (Safety and Reliability) Act 2008* be repealed, and regulate and manage the release of CSG water that may enter a public drinking water source under the *Environmental Protection Act 1994*.

A significant saving here would suggest the net result is less treatment and hence greater environmental and human risk. More information is required it is unclear if all of Part 9A is being repealed or only parts.

6.3 12 CSG operators be provided with flexibility in how to satisfy the regulatory requirements relating to the use of CSG water, pending the outcomes of the review of beneficial use approval assessment processes.

QMDC asserts that the *Draft General Beneficial Use Approvals for Irrigation and Associated water (including coal seam gas water)* have not successfully demonstrated how they will provide a high level of stewardship for both natural resources and those communities dependent on them. QMDC believes if the Draft Approvals are to contribute to the overarching legislative framework to control and manage the impacts of coal seam gas development within the Queensland Murray-Darling Basin they must be implemented primarily to prevent avoidable adverse impacts to the region's natural resources, community, and economy in the short and long term.

QMDC asserts that stringent controls are needed because at the very least "beneficial use" of coal seam gas water is not a tried practice in the proposed types of use. Using associated coal seam gas as a resource is a very new activity and in our opinion requires a mandatory approach to monitoring and reporting. Variations in receiving environments need to be fully considered.

Voluntary reports often fail to address these variations. Leaving it up to the user to merely consider "additional" fundamental soil and water quality testing is not acceptable.

Past analysis suggests that there are four key components necessary to the successful implementation of such regulatory flexibility initiatives. These are:

1. that those enterprises engaging in regulatory flexibility should adopt practices and processes that lead to the pursuit of beyond compliance goals and include outcome based requirements, the achievement of which can be measured through specific performance indicators;
2. that there should be independent verification both of the functioning of their management system and of environmental performance under it (for example by a third party environmental auditor), with the results or a summary of the results available both to the regulator and third parties such as community groups (transparency);
3. that there should be an ongoing dialogue with local communities concerning beyond compliance goals and the means of achieving them (this ensures the credibility and legitimacy of the process and enables third party input and oversight); and
4. that there should be an underpinning of government intervention; acting as a safety net which only 'kicks-in' when triggered by the failure of the other less intrusive mechanisms described above.

<https://www.globalreporting.org/resource/library/Carrots-and-Sticks.pdf>

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In the USA, state and federal regulators are now moving towards a more systematic approach, designed to provide rewards and incentives for improved compliance and high environmental performance through a two track system of regulation. Under this approach, enterprises (or at least enterprises with certain environmental credentials) are offered a choice between a continuation of traditional forms of regulation on the one hand, and a more flexible approach (the central pillars of which are usually the adoption of an environmental management system, periodic internal environmental audits, and community participation) on the other.

The ultimate test of the success or otherwise of regulatory flexibility initiatives such as the above is an empirical one. Despite the very considerable potential of Environment Management Systems-based regulatory flexibility initiatives more generally, the jury is still out on their strengths, weaknesses and, ultimately, their successes.

6.4 13 EHP expedite the development of an electronic waste tracking system for CSG water by no later than 30 June 2014, to reduce time delays in the compliance process.

QMDC supports this recommendation.

6.5 14 EHP, NRM and OGIA rationalise compliance and reporting of CSG activities to:
(a) consolidate their databases
(b) prepare a single information template for completion by operators.

In QMDC's opinion, the rationalisation of compliance and reporting must depend upon independent monitoring for all coal seam gas operations to ensure transparency and accountability to local and regional communities.

Monitoring data and compliance reports must be made public in a format conforming to national data management protocols to allow public access within real time. Additionally independent review of local and regional conditions and trends should be required.

Monitoring and management plans need to be therefore consistent (including units of measure), within the defined asset, and across coal seam gas industry operations so that they report against site, total and cumulative thresholds.

6.6 15 The *Water Act 2000* be amended to define triggers for requiring baseline assessments on petroleum tenures, and the preparation of a baseline assessment plan to reflect the risk of impacts on private bores.

6.6.16 Amendment of baseline assessment plans not be required if new information on pre-existing bores is identified as a result of conducting baseline assessments.

QMDC is concerned that not requiring amendments of plans could lead to a significant reduction in impact assessments e.g. if bore levels are deteriorating and it is deemed to be due to stock use there will be no need for monitoring coal seam gas impacts.

6.7 17 Construction standards for water bores and wells constructed under the *Petroleum and Gas (Production and Safety) Act 2004* and *Water Act 2000* be harmonised.

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QMDC only supports this recommendation if the alignment to other industry practices or legislative requirements does not allow the coal seam gas industry to relax its construction standards.

The indicative savings of \$10,000 to \$30,000 per water bore would suggest the standards adopted will be the lowest permissible and not the standards community would expect to apply to all exploration and development bores.

6.8 18 The Government consider consolidating the regulation of CSG water into a single portfolio.

6.8.19 The requirement for EHP to approve OGIA's technical reports be removed.

7.2 20 The *Petroleum and Gas (Production and Safety) Act 2004* and *Workplace Health and Safety Act 2011* be amended to remove duplication and overlapping requirements relating to health and safety.

7.3 21 The plant registration requirements of the *Workplace Health and Safety Regulation 2011* and commissioning requirements under the *Petroleum and Gas (Production and Safety) Act 2004* be aligned.

7.4 22 The definition of 'plant' and 'operating plant' in ss. 670 and 673A of the *Petroleum and Gas (Production and Safety) 2004 Act* be clarified to prevent confusion with the *Workplace Health and Safety Act 2011*.

7.5 23 The *Petroleum and Gas Regulation 2004* be amended to provide for an appropriate accuracy requirement (+/- two degrees in azimuth) for surveying vertical wells with fewer than 6 degrees in inclination.

7.6 24 The *Type B Approval Process Guidelines* be amended to allow CSG operators to become certified Approval Authorities of all Type B devices as defined under the *Petroleum and Gas (Production and Safety) Act 2004*.

7.7 25 A guideline outlining registration requirements for high-risk pressure equipment be prepared by Workplace Health and Safety Queensland and NRM.

QMDC believes this will incur costs not save costs.

7.8 26 Clarity on the definitions of 'Preliminary Activity' and 'Advanced Activity' be provided by NRM.

QMDC supports clarifying definitions however we believe this will also incur costs not save costs.

7.9 27 A revised approach to petroleum exploration and production tenure administration be developed by NRM by no later than 31 December 2014, based on a total project rather than an individual tenement assessment.



28 The development of guidelines to assist the lodgement and assessment of Potential Commercial Area applications be expedited by NRM.

QMDC believes this will incur costs not save costs.

7.10 29 DSDIP be responsible for facilitation of the development of a sustainable CSG industry and oversight of the CSG regulatory regime to ensure its effective function, including reviewing agency performance in CSG service delivery.

QMDC does not agree that this responsibility should fall to this Department. Compliance should remain with those Departments that have the most experience in this role and who have ready access to key information such as monitoring and baseline data, environmental authority conditions, environmental value data, research and scientific reports etc.

- 8.2 30 A single regime for protecting high value agricultural land be developed to:**
- (a) provide a clear, accurate and unambiguous definition of the areas and values to be considered worthy of protection**
 - (b) incorporate maps of a higher quality to enable ready identification of areas not requiring protection**
 - (c) incorporate a cost-effective means for resolving obvious errors in mapping**
 - (d) exempt low-risk low impact activities from assessment.**

Extensive community submissions have been made on these issues. Implementing recommendations from those submissions should form the basis of a regime to protect high value, good quality, and strategic cropping land. This does not need further consultation but rather an acknowledgment of the agricultural and natural resource management science and experience informing those submissions.

Additionally this action requires financial investment before there can be any savings.

8.3 31 The terms 'Notice of Intention to Negotiate' in the *Petroleum and Gas (Production and Safety) Act 2004* be amended to allow advanced activities to commence within the mandated 20-day negotiation period:

- (a) where a Conduct and Compensation Agreement or Deferral Agreement has been reached with the landholder and**
- (b) subject to either party being able to retain the right to require cessation of advanced activities if differences in scope of the agreed activity arise.**

Negotiated agreements must involve specific commitments to social, economic and environmental protection goals elaborated through bargaining between the industry and landholder. QMDC supports negotiated agreements if they are developed as part of an explicit attempt to improve social, economic and environmental policy outcomes without overburdening the landholder or putting the landholder at a competitive disadvantage, and, to promote a quicker and smoother achievement of objectives than the cumbersome and often conflict-ridden route of legislation.

QMDC is concerned, however, that a 20 day timeframe is unreasonable period of time to promote equitable bargaining.

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Additionally the tension between the goals of government and industry under voluntary agreements raises a number of challenges. First, to the extent that the agreement would commit industry to doing something it would not otherwise choose to do (i.e. spend money on environmental improvements which do not otherwise enhance profits), then the agreement must provide sufficient incentives to deliver a net gain. Such incentives might include reputation enhancement (for example bestowing the status of a social licence to operate), facilitating a price premium or expansion of market share, or the provision of regulatory concessions. The latter is likely to be by far the strongest incentive to join, and a substantial number of agreements have involved implicit or explicit bargains of this nature.

Second, since industry would prefer to obtain whatever benefits are available under the program at as little cost as possible, it is likely to negotiate hard so as to minimise its commitments. Most commonly, this implies negotiating for as low a performance target as possible, and ideally one that can be met as a result of improvements taking place already, without necessitating any additional action or expenditure.

Third, where the costs of participation are substantial but the enterprise has sufficient incentive to join, it may seek to gain the benefits of participation without bearing the costs. That is, it may default, and hope to ‘free-ride’ by gaining the reputation benefits and regulatory concessions consequent on participation without discharging its responsibilities under the agreement.

Fourth, these tensions generate risks of a phenomenon tantamount to regulatory capture, whereby regulators, by virtue of a too close association with industry (and the closed-door nature of many negotiated agreements), or in consequence of informal inducements (such as the promise of future employment in the regulated industry) acquiesce in the negotiation of targets and other conditions that are unduly favourable to industry and contrary to the public interest.

<http://www.aic.gov.au/documents/B/A/0/%7BBA0FC2D0-B43E-4CB6-A5AD-95ACE70542AA%7DRPP57.pdf>

In QMDC’s opinion, voluntary approaches are likely to only achieved only modest success because of the central role of industry in the target-setting process. The uncertainty over regulatory threats, non-enforceable commitments, poor monitoring and lack of transparency will also undermine voluntary regulatory mechanisms.

Much more specific targets tend to be set by government rather than vaguer goals being determined by industry. Government negotiators are much more sensitive to the risks of setting targets that merely reflect improvements that would happen anyway, and there is a movement towards linking negotiated agreements with other policy instruments, such as taxes, or to complement rather than replace existing regulations. QMDC would like to see regulatory changes build on these understandings and practices.

Greater efforts are also being made in terms of transparency and third party input. Whether these developments will justify the faith of advocates of voluntary approaches, and whether the additional transactions costs of building in essential checks and balances will render such instruments too costly, remains to be seen.



8.4 32 The exclusion in s.150 of the *Environmental Protection Act 1994* for public notification of an Environmental Authority be extended to coordinated projects.

QMDC does not support exclusion of community engagement and participation in legislative processes.

9.2 33 Charges and fees should have clarity of purpose, be transparently developed, based on efficient costs, have low compliance and administration costs and monitored and reviewed in a timely manner.

9.3 34 Budget supplementation of regulatory services be reduced as the savings from reforms identified in this report are achieved.

QMDC would argue budget supplements are needed to boost the monitoring and compliance responsibilities of the regulator. The risk is that reductions will undermine government policy to enforce key constraints on the industry

9.4 35 Agencies be required to identify and implement opportunities for applying contestability to CSG regulatory services.

In QMDC's opinion, compliance services must remain independent, impartial and not be corrupted by commercial interests. Regulatory services must remain transparent, for example, who scrutinises or assesses performance and compliance and does that person have the necessary qualifications in the relevant field to be able to make a proper assessment of the suitability or capability of the applicant's experience as evidence of competence. QMDC is of the opinion that this should occur whether departmental staff or contractors carry out work.

Public access to an auditor's application papers if not available will undermine the right to file a legitimate complaint where there is a public resource or public interest at the core of a compliance, site management or assessment issue.

The qualifications of the auditor or lack of qualification or competency may well be reflected in the reports submitted. This is of particular concern in the area of soil science and salinity, contamination of land and water with BTEX and other hydrocarbons e.g. polycyclic aromatic hydrocarbons PAHs, heavy metals, pedology especially of dispersive and sodic soils and salt contamination.

9.5 36 A single industry levy (including that based on tenures, wells or in the form of the same dollar amount applied to all operators) not be adopted to fund all CSG regulatory services.

The industry should fund all coal seam gas regulatory services.