

DOWN to EARTH

Coal seam gas: a case study for developing
a new model for community involvement
in strategic land use governance and resource
planning in Queensland

DISCUSSION PAPER

Queensland Public Interest Law Clearing House Incorporated (QPILCH)

PO Box 3631

SOUTH BRISBANE BC QLD 4101

T: 07 3846 6317

F: 07 3846 6311

E: contact@qpilch.org.au

W: www.qpilch.org.au

Acknowledgements

This paper was compiled and written by Catherine Hartley, Tim Laird and Alexandra Wolhuter with the assistance of Stephen Grace, Ying Tay, Amy Quintin, Alex Seton, Jessica Thrower, Lisa Fairley, Paula Hughes, Rachel Gallagher, Sarah Brown, Jasmine Ross, Scott Gruar, Jacqueline Scanlan, Maria Comino and Terry Slight.

General editing was provided by Karen Dyhrberg and Richard Fotheringham.

Cover page, timeline and other design by Phoebe Browning.

We gratefully acknowledge the financial assistance of the Gambling Community Benefit Fund and Griffith University Law School.

About QPILCH

The Queensland Public Interest Law Clearing House Inc (QPILCH) is an independent, not-for-profit incorporated association bringing together private law firms, barristers, law schools, legal professional associations, corporate legal units and government legal units to provide free and low cost legal services to people who cannot afford private legal assistance or obtain legal aid.

QPILCH was established in June 2001 as an initiative of the legal profession and commenced services in January 2002. It coordinates and facilitates pro bono legal services for individuals and community organisations and provides direct civil law assistance to the homeless, refugees, people experiencing mental illness and self-represented litigants.

QPILCH is a member of the *Queensland Association of Independent Legal Services*, affiliated with the *National Association of Community Legal Centres*, and is a member of Pro Bono Access Australia.

For more information about QPILCH services, please see the QPILCH website at www.qpilch.org.au under Services.

The laws relevant to this study are in a state of flux. Unless otherwise stated, the laws and policies referred to in this paper are current as at **15 November 2013**

Contents

Acknowledgements	2
About QPILCH.....	2
1. Why write this paper?.....	5
2. Coal seam gas: A case study.....	8
2.1. Introduction to coal seam gas.....	8
2.2. Overview of regulatory framework.....	10
Reforms by Commonwealth Government.....	11
Resource management.....	11
Assessment of coordinated development.....	12
Environmental assessment of CSG proposals	13
Environmental regulation of CSG prior to the Greentape Reduction Act.....	14
Regulation of CSG water.....	15
Regulation of CSG water prior to the Greentape Reduction Act and other recent amendments	16
Regulatory framework for land access and agricultural interests	18
Regulating cumulative impacts in Queensland	19
2.3. Framework for dealing with knowledge uncertainty	21
Precautionary principle.....	21
Adaptive management	22
3. Issues in coal seam gas governance	25
3.1. Knowledge uncertainty and environmental impacts in coal seam gas mining	25
Knowledge uncertainty	26
3.2. Managing impacts and uncertainty.....	29
Changes to the EIS process under the Greentape Reduction Project	29
Role of the EIS in addressing impacts and dealing with uncertainty	31
Framework for dealing with uncertainty.....	32
3.3. Inadequate consideration of social and economic impacts	34
Direct economic and social impacts	34
3.4. Cumulative social, environmental and economic impacts.....	37
3.5. Limited consultation and participation.....	39
Participation at different levels of decision-making	39
Calls for public consultation and comment	39
Participatory processes.....	40
Negotiation and litigation.....	41
3.6. Current planning processes.....	42
4. Ideas for change - managing knowledge uncertainty and cumulative impacts (environmental, social and economic)	44
4.1. Introduction	44
4.2. Ideas for improving project-specific assessment such as the EIS	44
4.3. Ideas for re-thinking strategic assessment - adaptive management and the precautionary principle	47

4.4	Ideas for re-thinking strategic assessment - joint fact finding	48
	Cooperative examples	49
	Crowd science	52
4.5	Improved consideration of cumulative social and environmental impacts	53
	Improving the existing framework.....	53
	Using community indicators to measure impacts and progress	55
5.	Ideas for change – collaboration and participation.....	57
5.1.	Introduction	57
5.2.	Cooperation and collaboration.....	57
5.3.	Collaborative governance.....	59
5.4.	Forms of public participation.....	60
	Mechanisms for making citizens joint decision-makers	60
	Devolving decision-making powers – <i>subsidiarity</i>	64
	Dispute resolution mechanisms.....	66
	Mechanisms for participation within representative systems	67
6.	The role of politicians and government in public participatory processes	74
6.1	Introduction	74
6.2	Examples of political/government involvement in collaborative dispute resolution and planning in the UK and USA.....	74
	US community collaborations	75
	United Kingdom	76
6.3	Australian examples of political involvement in collaborative mechanisms	77
7.	A model for Queensland?	79
7.1	Introduction	79
7.2	What should a participatory model look like?.....	80
7.3	What types of issues should such a mechanism apply to?	81
7.4	Who would participate and how would they be selected?	82
7.5	How would the mechanism be triggered?.....	85
7.6	How much time should it take?.....	86
7.7	How would such a mechanism be funded?	86
7.8	How would it report?.....	87
7.9	Evaluation	88
7.10	Conclusion	89

List of tables and figures

Figure 1: Comparative timelines of CSG development (A) and CSG regulation (B). All legislation referred to in these timelines is Queensland legislation unless otherwise indicated as Commonwealth (Cth) legislation. Please note that there has been much legislative activity since 2011. 24

Figure 2: Comparative timelines for major CSG projects in Queensland. All legislation referred to in these timelines is Queensland legislation unless otherwise indicated as Commonwealth (Cth) legislation. 90

Table 1: Goals and criteria for evaluating public participation mechanisms..... 72



1. Why write this paper?

The resource industry has always been a major contributor to the Queensland economy. In the last decade particularly, the pace and scale of resource development has grown rapidly, leading to great economic rewards, from which all Australians have benefitted. This rapid growth however, has placed enormous strain on some communities and environments.

Since 2004, regulation of the mining industry, particularly the development of coal seam gas (CSG) extraction, has not kept pace with development.

The research for this project commenced in 2011 at a time when most stakeholders were dissatisfied with the regulatory framework, which was piecemeal and complicated. This discussion paper was conceived in the hope that there may be ways to avoid the confusion and conflict that has characterised the rise in CSG development in the future.

It is arguable that the assessment and planning framework developed to respond to the rapid rise in CSG development is still in the experimental stage. It was decided therefore to use CSG as a case study to examine how the CSG industry has developed, how it is regulated and identify flaws in the regulatory process. The aim was also to see how rapid resource development has been managed elsewhere and if any other models might be appropriate to better plan for future resource development of this kind and to head off disputes that add cost, delay and disruption, and result in the lingering dissatisfaction of the 'losing' parties.

CSG is just one example of many pressures on our environment and society. It was chosen because it starkly exposes the different perspectives and values of stakeholders.

The purpose of the new *assessment* framework is to reduce 'green tape' to encourage greater CSG development. The purpose of the new *planning* framework is to address concerns about the impact of mining development on farmland. So far, these changes do not appear to reduce complexity or address other concerns - social, environmental or economic - that have also been the focus of considerable public debate.

In conducting research for this paper, it also became clear that there is a widespread (and worldwide) sense of frustration with elected officials because people feel they cannot influence the important decisions that affect them. There is a growing sense too that much conflict around rapid development of industries such as CSG may be avoidable if all stakeholders are brought together before an industry is developed or its footprint radically changes.

Much of the disputation has been characterised as conflict between private property rights (between landowner and miner), leaving individual landowners and mining companies to negotiate private arrangements. While the recognition of broader concerns about agricultural security has led to policy reform, other public interest concerns such as impacts on communities and the environment remain unaddressed. There is a sense across communities that 'due process' has not been given to these broader issues and there is no cohesive community view that the mining framework enables self-interest and the common good to co-exist.

This paper aims to promote discussion on forms of 'land use governance' within our democracy. The ideas for better forms of consultation and greater public participation in land use governance sprang from the research that was carried out by one part-time researcher and a dedicated team of volunteer lawyers and law students over the last 18 months. The paper invites comment on the different ideas it contains for expanding or introducing participatory mechanisms into land use assessment and planning. Such mechanisms, if properly constructed and framed will potentially minimise impacts on property rights, environmental concerns and economic and social sustainability, particularly in light of the fact that developmental pressures are unabating and many concerns remain unresolved.

Governments struggle in meeting the demands and expectations of the community and managing the pressures we face, particularly the greater competition for natural resources and many cumulative pressures on communities and environments. More opportunities for inclusive democratic involvement and public participation in such issues can potentially engender greater community knowledge about an issue and understanding of other views and values and lead to better policy, greater social cohesion, increased public confidence in government, greater acceptance of an industry and economic, environmental and social stability.

With input from a wide range of interests and perspectives, the aim of this study is to:

- make recommendations for the improvement of 'land use governance';
- suggest new mechanisms for informing decision-making in land and resource use; and
- provide suggestions for changes that could be made to the current and emerging legal framework.

The paper seeks guidance on developing a mechanism that:

- stakeholders (including government) would be willing to try;
- facilitates a sharing and understanding of stakeholders' views and values and the issues involved;
- incorporates the latest knowledge and information into the decision-making process; and
- promotes open dialogue based on respect and a willingness to reach a shared and balanced approach.

This paper invites comment through a series of questions posed throughout the paper. While it asks some questions about improving the project assessment process, it does not seek input on reducing the complexity of the current framework. Instead, it considers another way – that of using a broad participatory model to facilitate community understanding of impacts in a longer-term context at a regional or strategic level.

It particularly seeks the views of people who are involved in or are directly affected by the CSG industry. Your views will be incorporated into a final report that will be published in late 2014.

Land use governance

In this paper, 'land use governance' refers to the various laws, structures, processes, rules and relationships aimed at assisting governing bodies and various other stakeholders to understand, manage and resolve competing land uses.¹

Public participation

Tentative and mostly informal steps have been taken in Australia to involve community participants in decision-making in issues that impact on them. The purpose of this discussion paper is to elicit ideas for giving new form and structure to such participation, particularly in complex issues such as competing land uses.

Outline of this paper

Chapter 2 is purely descriptive of the current regulation of the coal seam gas industry and includes a comparative timeline of CSG development and CSG regulation (**figure 1**). It was written to accommodate recent changes, but it is subject to further change over the coming year. The focus of this chapter is on the framework for project assessment.

Chapter 3 outlines key issues about the assessment framework and where the regulation fails, such as sufficiency of knowledge; management of risk; adequacy of consideration of the social and economic impacts; consideration of cumulative impacts; consultative processes for understanding direct impacts; and planning where mining and other issues intersect.

Chapter 4 introduces a number of ideas for addressing the issues of knowledge uncertainty and cumulative impacts and seeks input on the effectiveness of current protective mechanisms.

Chapter 5 raises for comment a number of ideas for improving resource development assessment and planning through better collaboration and participation.

Chapter 6 examines the role of politicians and government in public participatory processes, suggesting that the direct participation of politicians may be essential if the values and concerns of stakeholders are to be understood and respected. This part seeks comment on whether these ideas are viable and realistic.

Chapter 7 discusses a possible participatory framework for Queensland and seeks input on whether this is realistic, particularly if a public participation model is given legislative form and support. Chapter 7 also includes a comparative timeline for major CSG developments in Queensland since 2007 (**figure 2**).

Appendix 1 is a list all the questions asked throughout this paper.

Appendix 2 is a list of acronyms

Appendix 3 is a glossary of terms.

The paper concludes with an extensive list of references.

2. Coal seam gas: A case study

This paper focuses on coal seam gas (**CSG**) as an example of a land use issue where most stakeholders appear to be dissatisfied with the existing decision-making processes. The challenge of these processes is to take account of, or balance, the potential impacts of CSG mining on social, economic and environmental factors.

Much of the information for this chapter was researched in 2011 and 2012. Since then, there has been massive CSG policy, legislative and regulatory change. This chapter has been updated as of October 2013. However, many more changes have been foreshadowed over the coming year, which may render all or some of this information obsolete. In addition, some of the other factual information contained in this chapter, which when collected was accurate, may now be out of date.

2.1. Introduction to coal seam gas

CSG is a form of natural gas that is found within coal seams at depths of 300-1000 metres.⁶ CSG is formed through the break down of plant materials, a process which can take millions of years.⁷ CSG is predominantly made up of methane and is held in place within the coal fractures and seams by pressurised water. This water is removed through a process called 'dewatering' and the pressure is subsequently lowered. It is this lowering in pressure that allows the gas to flow.⁸ Gas production increases as the amount of 'produced water' that is pumped out of the coal seam decreases.

CSG is a type of gas known as 'unconventional gas.' Unconventional gas generally refers to gas trapped within complex geological systems in a way that restricts flow.⁹ As a result, most forms of unconventional natural gas cannot be extracted without the use of technology.¹⁰ Shale gas is another type of 'unconventional gas' that is contained within low permeability, sedimentary rock.¹¹ 'Conventional gas' on the other hand, is more readily produced as it is stored in reservoirs just below the surface.¹²

To extract CSG, wells must be drilled into the coal seams.¹⁴ The most common technique is vertical drilling, although horizontal drilling can also be used.¹⁵ Vertical drilling involves drilling down into the target coal seam and then casing the 'well' with steel and concrete.¹⁶ Compared with vertical drilling, horizontal drilling tends to have higher gas production rates and often results in better access to the target coal seam.¹⁷ Various combinations of these techniques exist and research is currently being undertaken to improve drilling technologies.¹⁸

Depending on the geology and permeability of the coal seam, a technique known as hydraulic fracturing, or 'fracking' is used to increase the

History of CSG mining

Exploration for CSG in Queensland began in the Bowen Basin in the 1970's and in the Surat Basin in the 1980's.² However, CSG was largely under-utilised until the 1990's as it was considered to be a waste product of coal mining.³ In recent years, the CSG industry in Queensland has expanded significantly due to improvements in the technology associated with CSG extraction⁴ and the introduction of a gas scheme requiring a percentage of all electricity produced in Queensland to come from gas fired power stations.⁵

The miners

While there are a number of different companies involved in CSG projects across Queensland, some of the major projects involve Santos, Petronas Australia, Queensland Gas Company, British Gas International, Arrow Energy, Shell, AGL Energy and Origin Energy.¹³

flow of gas.¹⁹ Fraccing involves injecting a fluid at high pressure into the coal seam. The exact composition varies from well to well but most CSG companies have stated that water and sand make up the majority of the fluid with chemicals only present in small amounts.²⁰ Generally the fluid will contain materials to keep the sand in suspension in the water and bacteriacides to assist with pH control.²¹ The use of sand allows the fractures in the coal seam to remain open while the gas is being extracted.²²

The Queensland Government has stated that fraccing is only used in “areas where there is low coal permeability or when the stress regime of the geological formation is not naturally conducive to high gas flows.”²³

Fraccing in the Bowen Basin is expected to occur more frequently than the Surat Basin due to the dense and pressurised nature of the coal seams.²⁴ The Queensland Government, in

2011, estimated that 8% of gas wells drilled in Queensland have been fraced but that in the future this figure will rise to between 10% and 40%.²⁵

The majority of CSG exploration and production in Queensland continues to occur in the Bowen and Surat Basins as well as the Galilee Basin. The Ipswich and Maryborough Basins have also been identified as prospective basins for CSG.²⁶

Many of the CSG projects in Queensland involve not only the production of CSG but also transportation via an extensive pipeline network and the conversion of CSG to liquefied natural gas (**LNG**) for export.³⁰ Many of the CSG to LNG facilities are located in and around Gladstone although proposals for LNG plants have been put forward in other areas in Queensland. CSG is also transported directly via pipeline to a number of gas-fired power stations.

The ability to mine CSG and coal in the same area means that overlapping CSG and coal mining tenures is increasingly becoming an issue. The main concern for coal miners is that areas may be excluded from coal exploration and production if a CSG tenure is also granted in the same area, particularly when there is an extended period of time between CSG exploration and production.³¹ The Queensland Government is in the process of reviewing the legislative regime governing overlapping tenures granted under the *Mineral Resources Act 1989* (Qld) and *Petroleum and Gas (Production and Safety) Act 2004* (Qld) (**P&G Act**) to resolve the on-going concerns of the coal and CSG industries.

Other stakeholders

As well as miners, other stakeholders involved in CSG mining include farmers, conservationists, indigenous people, government, business, health groups and not-for-profit community groups.

CSG at a glance

As at September 2011, there were 20 CSG projects in Queensland with a further 29 CSG projects proposed.²⁷ Each project may include gas fields, pipeline networks, waste water storage/treatment and processing plants.

4,489 gas wells have already been drilled across Queensland and it is estimated that 40,000 gas wells will be drilled over the life of the CSG industry, predicted to extend for 25 to 30 years.²⁸

It is estimated that Australia contains over 169,000 petajoules of CSG or 250 trillion cubic feet.²⁹

A comparative analysis of the history of the development of the CSG industry and the legislative regulation of the industry can be seen in Figure 1.

2.2. Overview of regulatory framework

The regulatory framework needs to manage a range of largely competing interests – mining and development, water, environment, access and social issues, and the interests of government itself. The government has been lobbied by industry to enable further development of the CSG industry while concerns have been raised by other stakeholders regarding the potential social and environmental impacts of CSG extraction.

The various laws and policies regulating the CSG industry are very complex. A number of different legislative instruments apply to CSG projects. Compounding the level of complexity found in the regulatory environment of this industry is that the legislative and administrative regime governing the grant and on-going regulation of the CSG industry is currently in a state of flux with recent legislative amendments, changes to the administrative oversight bodies and the fact that the legislative framework in a number of significant areas is currently being reviewed by the State Government. These reforms may significantly alter the way the CSG industry is regulated.

Currently, the CSG industry in Queensland is regulated by both State and Commonwealth legislation. The main legislation which applies to the CSG industry includes the:

- *Environment Protection and Biodiversity Conservation Act 1999 Act* (Cth) (**EPBC Act**) - which regulates 'matters of national environmental significance';
- *Petroleum Act 1923* which regulates certain petroleum and natural gas activities;
- *P&G Act* – which regulates petroleum and gas exploration tenure, safety, production and pipelines in Queensland;
- *Environmental Protection Act 1994* (Qld) (**EP Act**) which outlines Queensland's environmental regulation. Regulatory measures affecting the CSG industry include environmental authorities and protection policies; environmental impact statement (**EIS**) processes; duty to notify of environmental harm; as well as environmental evaluations and financial assurance measures;
- *Strategic Cropping Land Act 2011* (Qld) (**SCL Act**) which provides a framework for access to agricultural land for development activities;
- *Water Act 2000* (Qld) (**the Water Act**) which provides a framework for ground water regulation, including planning and use of water, standards, and statutory governance of water services;
- *Water Supply (Safety and Reliability) Act 2008* (Qld) (**the Water Safety Act**) which regulates CSG interactions and direct impacts associated with drinking water supply; and
- *GasFields Commission Act 2013* (Qld) establishes the GasFields Commission as an independent statutory body.

It is important to note that CSG is not subject to the planning provisions under the *Sustainable Planning Act 2009* (Qld).

Further policy reforms by State Government

The Queensland Competition Authority on behalf of the State Government is undertaking an investigation into the State's regulation of the CSG industry. The final report is due by 31 January 2014. The report is to include a comprehensive review of the Queensland Government's approach to regulating the CSG industry, including options for regulatory reform.³²

The *Modernising Queensland's Resources Acts Program* (**MQRA**) is a current initiative of the Queensland government whose stated purpose is to further reduce regulatory burden by modernising Queensland's tenures administration legislation for all resource types through the phased development of a common resources Act.³³ This policy initiative, if progressed into legislation will result in five Acts, including the *Mineral Resources Act 1989* (Qld), the *Petroleum Act 1923* and the *P&G Act* and combining them into a single common resources Act.³⁴ The

overlapping tenure legislative framework is also currently under consideration which, if amended, may significantly alter the interaction between the coal and CSG industries.³⁵

The Queensland Government is also undertaking a review of the *Strategic Cropping Land Act 2011*. Public consultation recently closed on the State Government's discussion paper seeking stakeholder feedback regarding possible legislative amendments. The Queensland government is also proposing to develop and put before parliament by December 2013, the *Regional Planning Interests Bill 2013* (Qld) (**Regional Planning Bill**) which will implement a number of new regional plans. It is understood that the Regional Planning Bill will include strategic cropping land as a regional planning interest and will incorporate the outcomes of the review.

The regulation of CSG water management is also under review which includes consideration of the Water Safety Act. The *Coal Seam Gas Water Management Policy 2012* states that legislative amendments to the *Environmental Protection Regulation 2008* (**the EP Regulation**) will provide for water quality standards to ensure that CSG water will no longer be regulated as waste water.³⁶

The red tape reduction reforms for mining and the green tape reduction reforms for environmental matters by the Queensland government have resulted in recent reforms to the CSG industry and it is likely that further reforms will be realised which may further impact on the regulatory regime governing the CSG industry.

Reforms by Commonwealth Government

At the Commonwealth level recent amendments to the EPBC Act became law on 22 June 2013. One of the significant changes which impacts on the CSG industry was the inclusion of a provision that where a CSG development has or is likely to have a significant impact on water resources it must be referred to the Commonwealth Environment Minister and will be subject to a Commonwealth environmental impact assessment. The provisions also exclude the use of existing bilateral agreements between States and the Commonwealth and removes State involvement and resources for environmental impact assessments under the new EPBC trigger. However, the Queensland and Federal Governments signed a memorandum of understanding in the week of 14 October 2013 accrediting Queensland environmental approvals processes for EPBC Act assessment. The Federal Government has indicated 12 months for the bilateral approvals process to be implemented.

Resource management

The P&G Act sets out the regulatory framework for many of the technical, economic and social aspects of CSG mining, including land access, royalties and annual rent. Under the P&G Act, CSG is classified as a type of petroleum and is the property of the state.³⁷ In order to lawfully extract CSG, a CSG company must first obtain an authority to prospect and then a production resource authority under the P&G Act. There are a number of different resource authorities which allow various 'authorised' and 'incidental' activities.³⁸ An example, of another type of resource authority for a CSG project is a pipeline licence.

In addition there are complex provisions dealing with the grant process where there is an overlap between a CSG application or tenure with a coal or oil shale application or tenure.³⁹ The overlapping tenure regime is complex and the policy and legislative framework regarding overlapping tenures is currently under consideration by the State Government.

The information relied on by the Department of Natural Resources and Mines (**DNRM**) when deciding whether to grant a particular resource authority is not generally publicly available. However, the legislation does specify the criteria and material which must be considered by the decision maker when deciding whether to grant the resource entitlement.

For both the grant of an authority to prospect and a production tenure the Minister must consider whether the CSG company meets the capability and eligibility criteria. The 'capability criteria' includes: the financial and technical resources of the CSG proponent and the capability of the CSG proponent to carry out and manage petroleum activities.⁴⁰ Additional matters include approval of the development plan, whether there is an approved environmental authority and any other special criteria specified by the Minister.

There are a number of mandatory conditions for resource authorities. Key mandatory conditions for both the pre-requisite authority to prospect tenure and for a production tenement include:

- requirements in relation to negotiating with landowners;
- to have a work program or development plan, water monitoring and drilling; and
- decommissioning wells.⁴¹

There are also tenure specific mandatory conditions, for example, obligations to relinquish sub-blocks in respect of an authority to prospect resources authority.⁴² Some of these issues are considered in more depth below.

Under the P&G Act there are various cost liabilities on the CSG proponent that are payable to the State Government. Costs associated with application fees, annual rent and royalties are specified under the *Petroleum and Gas (Production and Safety) Regulation 2004* (Qld) (**the P&G Regulation**). Annual rent is payable to the Chief Executive of the DNRM for each square kilometre or sub-block that is included within the resource authority area.⁴³ Royalties are paid to the state in exchange for the right to use the petroleum resources.⁴⁴

Assessment of coordinated development

The *State Development and Public Works Organisation Act 1975* (Qld) (**SDPWO Act**) applies to CSG projects that are declared 'coordinated' by the Coordinator-General. The functions and duties of the Coordinator-General include undertaking and commissioning investigations, preparing plans, devising ways and means and giving directions that may be necessary or desirable to secure the proper planning, preparation, execution, coordination, control and enforcement of a program of works, planning developments and environmental coordination.⁴⁶

If CSG projects are not declared 'coordinated' under the SDPWO Act, they are assessed and approved under the legislative framework contained in the P&G Act and the *Environmental Protection Act 1994* (Qld) (**the EP Act**). This is discussed later under 'Regulatory framework for land access and agricultural interests' and 'Environment and planning regulation.'

When declaring a 'coordinated project,' the Coordinator-General must be satisfied that appropriate environmental assessment will be carried out under the EP Act and must consider the potential effect of the project on infrastructure and employment as well as the strategic significance of the project to the locality,

CSG projects declared significant

The Australia Pacific LNG Project, which is a joint venture between ConocoPhillips and Origin Energy, involves the development of CSG resources, a 450 kilometre underground main transmission gas pipeline and a processing plant and export facility.

The Gladstone LNG Project was proposed by Santos Ltd and Petronas and involves the development of a number of CSG fields around Roma, Emerald and Taroom, a 435 kilometre gas transmission pipeline, a liquefaction and export facility, port dredging and associated infrastructure.

The Queensland Curtis LNG Project was proposed by QGC and involves the expansion of QGC's existing CSG operations in the Surat Basin, an 800 kilometre network of gas pipelines and an LNG plant and export facility.⁴⁵

region or state.⁴⁷ The Coordinator-General must also consider a pre-feasibility assessment of the project, including how it satisfies an identified need or demand and complete a separate statement detailing the proponent's financial and technical capability to complete an Environmental Impact Statement (EIS).⁴⁸ Even if a project satisfies one or more of the criteria to be declared a 'coordinated project', the Coordinator-General is not bound to make the declaration in favour of the project.⁴⁹

The Coordinator-General oversees the development assessment process for 'coordinated projects' and if an EIS is required, can ask the CSG company to undertake public notification and state a period within which comments may be made. If an EIS is not required, the Coordinator-General must be satisfied that an appropriate EIS will be carried out under another legislative regime, such as under the EP Act, before declaring the project 'coordinated.' The time frame for preparing an EIS was recently shortened from 24-months to 18-months.⁵⁰

The EIS process until approval in Queensland is:

- initial advice statement including scope produced by the proponent;
- Terms of Reference (ToR) developed by the relevant department;
- EIS developed by the proponent;
- public review and comment; and
- decision whether to approve the proposal by the department.

For all CSG 'significant' projects which require an EIS, a Social Impact Assessment (**SIA**) may be required to be prepared (an EIS that is prepared under the EP Act may also consider the social impacts of the proposed development but there is no requirement to prepare a separate SIA). The SIA forms part of the EIS and must address the impact of the project on demographics, economic factors, health and well being, institutional issues and amenity.⁵¹

The Coordinator-General must consider all submissions and any materials which are relevant when deciding whether to approve a 'coordinated project.' The Coordinator-General releases a report outlining the conditions which must be included in the resource authority (under the P&G Act) and environmental authority (under the EP Act). This report is provided to the Department of Environment and Heritage Protection (**DEHP**) and to DNRM so that the conditions may be included in the relevant authorities.⁵² Any other conditions that are included by DEHP or DNRM must not be inconsistent with the Coordinator-General's conditions. The Coordinator-General's Report for the EIS of the project lapses after three years.⁵³

The SDPWO Act allows the Coordinator-General to recover from the CSG company the reasonable cost of obtaining advice or services that the Coordinator-General considers is necessary to decide an application or take action relating to a coordinated project.⁵⁴ For example, the Coordinator-General may "seek to recover from the proponent (CSG company) the costs associated with commissioning an independent report into a particular aspect of the project proposal that the Coordinator-General considers is necessary to evaluate the project's EIS."⁵⁵ However, there is little available information about how frequently the government has sought to recover costs or the amount of costs that may have been recovered by Government.

Environmental assessment of CSG proposals

In Queensland, you need to apply for an environmental authority (**EA**) to undertake an environmentally relevant activity such as CSG. The EP Act sets out the regulatory framework for the environmental aspects of CSG mining.

The *Environmental Protection (Greentape Reduction) and Other Legislation Amendment Act 2012* (**Greentape Reduction Act**) recently amended the EP Act. These amendments commenced on 1 April 2013. The purpose of the regulatory reform was to simplify the assessment of EAs and to provide an integrated assessment process. These amendments have impacted the assessment of CSG activities.

Environmental regulation of CSG prior to the Greentape Reduction Act

Prior to the introduction of the Greentape Reduction Act, CSG activities were classified as either 'level 1' or 'level 2' (the decision making processes which apply to level 2 CSG activities are similar to level 1 CSG activities. However, for level 2 CSG activities there was generally no right to comment or make submissions on applications for environmental authorities). CSG mining activities that were considered level 1 included those that were likely to have a significant impact on an environmentally sensitive area or involve the construction of pipelines of more than 150 kilometres in length, high hazard dams or the injection of waste fluids into aquifers.⁵⁶ To obtain an environmental authority for a level 1 activity, a CSG company was required to lodge an application with DEHP that included an environmental management plan detailing proposed environmental protection commitments.⁵⁷

The *Guideline for Preparing an Environmental Management Plan (EMP) for CSG Activities* assisted CSG companies to understand the requirements of EMPs by describing a preferred structure that addresses potential environmental impacts on air, noise, land and water as well as other issues associated with the payment of financial assurances, the use of dams and waste management options.⁵⁸

DEHP was required to decide whether or not an EIS will be required for level 1 CSG activities within ten business days of receiving the application for an environmental authority.⁵⁹ The Department of Environment and Heritage Protection (**DEHP**) must have considered things such as the principles of Ecologically Sustainable Development (**ESD**) as set out in the *National Strategy for Ecologically Sustainable Development (NSES)*, best practice environmental management for the proposed activities, the character and resilience of the receiving environment and the public interest when deciding whether to approve the environmental authority.⁶⁰ For projects that were declared 'coordinated' under the SDPWO Act, all conditions for the environmental authority that are stated in the Coordinator-General's report for the project must have been included in the environmental authority that was issued by DEHP.⁶¹ In addition, any other condition that was imposed on the environmental authority must not have been inconsistent with the Coordinator-General's conditions.⁶²

When deciding whether to approve an application for an environmental authority, DEHP must have considered any submissions or resource authority applications which have been made under the P&G Act.⁶³ If DEHP approved an application for an environmental authority it must have imposed conditions as it saw necessary or desirable.⁶⁴ Some of the conditions which may have been imposed include requiring a CSG company to carry out monitoring programs and give relevant information. Importantly, DEHP could impose conditions that continue to apply after the environmental authority had ended or ceased to have effect.⁶⁵ The majority of environmental authorities for CSG mining activities were approved with conditions.

CSG companies must now obtain an EA under the EP Act for each CSG project that they undertake. That is, one EA may apply to a number of different resource authorities that are issued under the P&G Act but collectively, constitute one CSG project.

All applications for major CSG production, gas pipeline and liquefied natural gas (**LNG**) processing plant projects must go through an EIS process. The EIS may be carried out under the SDPWO Act or through the EP Act. Requirements for an EIS under the SDPWO Act are outlined above. At the end of the EIS process, projects may be granted an EA that includes conditions for the minimization of environmental harm.

Small-scale CSG operations or exploration activities may not require an EIS but will still need to undergo assessment and public notification processes as part of the EA process.

CSG applications may also need to be referred to the Australian Government for assessment under the *Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act)*, which can impose conditions on the project to protect specific matters of national environmental significance. All of the approved CSG-LNG projects to date have been subject to this process and can be referenced in the Coordinator-General's report for each individual project.

The Queensland government has also implemented a number of plans and strategies aimed at ensuring that the conditions imposed under the EAs are complied with. This includes the DEHP's *Enforcement Guideline* to assist in choosing an appropriate enforcement response and the preparation of an Annual Compliance Plan which targets areas for specific compliance programs which includes the CSG/LNG sectors. DEHP monitors and reports on compliance activities undertaken as part of the compliance program.⁶⁶ In addition to compliance and enforcement the DEHP in certain circumstances has the power to amend the CSG company's environmental authority or make determinations about the appropriateness of the management criteria. However, CSG companies also have a role to play in monitoring and enforcement of conditions.

The EPBC Act is Commonwealth legislation which aims to protect and manage nationally and internationally important flora and fauna and ecological communities.⁶⁷ The environmental assessment process outlined in the EPBC Act is only triggered in circumstances where a matter of national environmental significance is likely to be affected by a proposed development.⁶⁸ An amendment to the EPBC Act was introduced into Federal Parliament on 13 March 2013 to provide that water resources are a matter of national environmental significance, in relation to coal seam gas and large coal mining development.⁶⁹ These provisions passed the Parliament on 19 June 2013, and received Royal Assent on 21 June 2013.

Previously any CSG project and large coal development generally only required assessment and approval under the EPBC Act if it is likely to affect a threatened species or ecological community or another matter of national environmental significance.⁷⁰ While those projects were referred to the Independent Expert Scientific Committee for advice on the impacts on water resources the relevant Commonwealth Minister did not have the power to consider and impose conditions directly relating to impacts on a water resource itself.

The recent legislative amendments include a 'water trigger' and allow the impacts of proposed CSG and large coal mining developments on water resources to be assessed at a national level. The Commonwealth Minister can also set appropriate conditions as part of project approval to mitigate significant impacts on the water resource. The Federal Government has released draft significant impact guidelines for the proposed water resources trigger but these are not yet finalised.

As outlined earlier, the Queensland and Federal Governments have recently signed a memorandum of understanding to accredit Queensland environmental approvals processes for EPBC Act assessment. This 'one stop shop' for environmental EPBC Act approvals removes the requirement to obtain separate State and Commonwealth approvals for EPBC Act triggered projects. Any state assessment of matters of national environmental significance under the EPBC Act must be separately identified in the approvals process and take into account relevant Commonwealth guidelines, plans and policies. The Federal Government has indicated 12 months for the bilateral approvals process to be implemented.

Regulation of CSG water

The P&G Act permits a petroleum tenure holder to take or interfere with underground water in the area of the tenure and to use the water for carrying out another authorised activity, without the requirement for a separate water licence. The *Land, Water and Other Legislation Amendment Act 2013* (Qld) passed by Parliament on 2 May 2013 recently amended the P&G Act to now enable a petroleum tenure to be able to use associated water for activities under another petroleum tenure or beyond the tenure's boundaries. Additionally a tenure holder may allow an owner or occupier of land a limited right to use water for domestic purposes or stock purposes (not intensive farming) within the tenure or on land adjacent to the tenure if owned by the same person.

Regulation of CSG water prior to the Greentape Reduction Act and other recent amendments

Prior to commencement of petroleum production, CSG companies were required to undertake a baseline assessment of groundwater using “all best efforts” to acquire all information regarding relevant bores in that area.⁷¹ The *Guideline for Undertaking a Baseline Assessment* provided information about the purpose of baseline assessments, the legislative requirements that must be met and technical advice on the mechanisms for undertaking the assessments.⁷²

For mining activities outside of CMAs, CSG companies were also required to prepare underground water impact reports within 14 months of the grant of the operating tenure. Before an underground water impact report came into effect, a CSG company was required to negotiate and enter into a ‘make good’ agreement with any landholders who own bores that may have impaired capacity.⁷³ The ‘make good’ agreement must have addressed the reason why the bore has impaired capacity, the measures which the CSG company will take to ensure that the bore owner has access to a reasonable quantity and quality of water and any compensation payable to the bore owner for the impact on the bore.⁷⁴ The obligation to report is ongoing, generally within three year periods. Thus monitoring and assessment responsibilities fall on CSG companies.

In areas that have been declared CMAs, the QWC was responsible for the preparation of underground water impact reports.⁷⁵ The cost of preparing the underground water impact reports was covered by a CSG industry levy.⁷⁶

The *Guideline for Preparing an EMP for CSG Activities* provided a hierarchy of methods for dealing with waste in CSG water. Preferred management options included:

- injection where detrimental impacts on the environment are unlikely;
- untreated use where the CSG water can be used without substantially changing its composition;
- treatment and use where the CSG water can be treated to an appropriate quality for the proposed use; and
- direct supply to a water service provider.⁷⁷

Non-preferred management options included:

- disposal into evaporation dams where there is no feasible alternative for using, treating or disposing of the CSG water;
- disposal via injection where a detrimental impact is likely; and
- disposal to surface waters and disposal to land unless it is approved for beneficial use.⁷⁸

An EMP must have also included details about the likely quantity and quality of produced water and proposed methods for managing the water.⁷⁹

The *CSG Water Management Policy* prohibited the continued use of evaporation dams as the primary means of disposing of CSG water and contains requirements relating to the lining of storage ponds.⁸⁰ The Policy also outlined a waste management hierarchy for the treatment and disposal of brine and solid salt. The most preferred option for dealing with brine and solid salt was waste re-use or recycling by chemical processing or treatment of residues to create useable products.⁸¹ Other possible management options included injecting or disposing of the brine.⁸²

The *Water Supply (Safety and Reliability) Act 2008* (Qld) provides a regulatory framework to protect public health where CSG water may impact on town drinking water supplies.⁸³ It also applies where CSG operators undertaking a water supply service such as supplying treated CSG water for the purposes of a municipal drinking water supply. Under this framework, a CSG company must have an exclusion decision or a recycled water management plan (**RWMP**) before supplying recycled CSG water to a drinking water source.⁸⁴ A RWMP must demonstrate how any risks associated with variations in the quality of the water will be managed and include an assessment of the risks of various hazards specific to CSG water.⁸⁵ CSG companies can apply for an exclusion from the requirement to have an approved RWMP if they believe that there will not be a material impact on communities’ drinking water supplies.⁸⁶ Where the CSG water provider owns infrastructure (such as pumps, ponds or pipelines) and intends to charge

for the supply of the CSG water to another party, it will need to be registered as a service provider.⁸⁷

If the CSG water provider wishes to supply the CSG water for another purpose (for example, water supply for an environmentally relevant activity) it must also obtain a water licence under the Water Supply Act.⁸⁸

The impacts of the extraction of CSG water on groundwater supplies are managed under the Water Act and the environmental management of CSG operations, including the management of CSG water, is dealt with under the EP Act.

Amendments to the Water Act provide for management of impacts on underground water caused by petroleum mining activities. These were previously outside the water regulatory framework. The Water Act provides a separate underground water management framework for petroleum industry proponents. This framework requires:

1. petroleum tenure holders to monitor and assess the impact of the exercise of underground water rights on water bores and to enter into and “make good” agreements with the owners of bores;
2. requires the preparation of underground water impact reports that establish underground water obligations including obligations to monitor and manage impacts on aquifers and springs; and
3. management of the cumulative impacts of the exercise of 2 or more petroleum tenure holders’ underground water rights on underground water.⁸⁹

CSG water is considered to be a waste product as defined under the EP Act and is managed under the EP Act and as such requires an EA which specifically provides for the disposal of the waste. The role of the Coal Seam Gas Water Management Policy 2012 is to provide guidance to CSG operators in relation to the management of water under their EA and supports the beneficial use of waste water. For example, managing CSG water may include a water treatment facility and using treated CSG water for dust suppression.

In all but exceptional circumstances evaporation dams are banned as a management option for CSG water and existing CSG operators are required to decommission remaining evaporation dams.⁹⁰ The policy provides for a management hierarchy:

- Priority 1 – CSG water is used for a purpose that is beneficial to one or more of the following: the *environment*, existing or new water users, and existing or new water-dependent industries.
- Priority 2 – After feasible beneficial use options have been considered, treating and disposing CSG water in a way that firstly avoids, and then minimises and mitigates, impacts on *environmental* values.⁹¹

Alternatively a CSG water provider can obtain a specific beneficial use approval under the *Waste Reduction and Recycling Act 2011*. Where a specific beneficial use approval under the *Waste Reduction and Recycling Act 2011* is obtained it is not considered waste within the meaning of the EP Act.

The *Waste Reduction and Recycling Act 2011* authorises particular beneficial uses of CSG water and what would otherwise be CSG related wastes. For example a CSG company can use the water that is produced through their CSG mining beneficially by making it available for agricultural, mining, industrial or urban purposes.⁹² Some of the more innovative beneficial uses which have been proposed include using the brine in glass manufacturing and fish breeding experiments.⁹³

The Queensland government has also established the *CSG Enforcement Unit (the CSGEU)* which includes environmental and groundwater experts, petroleum and gas safety specialists and staff specialising in land access issues.⁹⁴ The CSGEU manages complaints about CSG

activities and coordinates the delivery of compliance activities.⁹⁵ It also regulates and builds community confidence in the CSG industry. The CSGEU is also responsible for sampling groundwater bores and verifying the monitoring data that is being supplied by CSG companies.⁹⁶ The CSGEU is funded by the Queensland Government.⁹⁷

Regulatory framework for land access and agricultural interests

In 2010, the Queensland government released the *Land Access Code* which forms part of the policy framework developed with assistance from the *Land Access Working Group* that was established to encourage collaboration between the agricultural and resources industries (The Working Group was made up of representatives from AgForce, the Queensland Farmer's Federation, Australian Petroleum Production and Exploration Association and the Queensland Resources Council). The Code states best practice guidelines for communication between CSG companies and landholders and imposes mandatory conditions on CSG companies concerning the activities which are conducted on private land.⁹⁸ The Code provides a number of general principles for establishing and maintaining good relations between CSG companies and landholders including liaising in good faith and respecting the rights of the landholder and the CSG company.⁹⁹

Since then the Queensland Government has established an implementation committee comprising of senior representatives of the Gasfields Commission Queensland, AgForce, Queensland Farmers' Federation, Queensland Resources Council, Australian Petroleum Production and Exploration Association and the Association of Mining and Exploration Companies to implement the Government's land access reforms contained in the Government's Six Point Action Plan.¹⁰⁰ According to that document the six priority actions include:

- Conduct and compensation including the review heads of compensation to ensure no cost or erosion of landholder rights and the expansion of the Land Court jurisdiction to include conduct;
- A single Land Court accredited form of independent alternative dispute resolution (ADR), integrated into the Land Court;
- Conduct and Compensation Agreements (**CCA**) to be noted on title by companies;
- Parties can agree to opt out of the Land Access Framework (at the election of the landholder if both parties agree);
- Development of standard CCAs for mineral, coal and coal seam gas industries in partnership with the resource and agricultural sectors; and
- Review and rationalise information sources into a single resource for landholders and resource companies.¹⁰¹

However, the document also recognised that in order to give effect to many of those land access reforms legislative amendment will be required.

The *Strategic Cropping Land Act 2011* (Qld) (**the SCLA**) aims to identify and protect land that is highly suitable for cropping, manage the impacts of development on that land and preserve the productive capacity of that land for future generations.¹⁰² Development has a permanent impact on Strategic Cropping Land (**SCL**) if it prevents the land from being cropped for at least 50 years or if the land cannot be returned to its pre-development condition.¹⁰³ If a particular type of development is considered to have a permanent impact on SCL, the development will only be allowed in exceptional circumstances.¹⁰⁴ Under Chapter 4 of the SCLA exceptional circumstances can be determined by way of regulation or on the making of an exceptional circumstances decision. Resources authorities including CSG authorities cannot be prescribed as excluded by regulation. The prescribed fee for making an exceptional circumstances application under section 124(e) of the SCLA is \$ 49 546.¹⁰⁵

The former DERM published several trigger maps on its website that show areas of potential SCL.¹⁰⁶ If land is shown as potential SCL on the trigger map, a CSG company must either comply with the *Standard Conditions Code for SCL* which sets out a simplified compliance

framework for certain activities that are considered to only have a temporary impact or no additional impact on SCL, or provide an assessment of the impacts of their proposed CSG project to DEHP so that conditions can be imposed.¹⁰⁷ The impacts on SCL will then be assessed as part of the environmental authority application under the EP Act.¹⁰⁸ Some of the activities which are listed in the standard conditions code as only having a temporary impact on SCL are access tracks, CSG wells and certain exploration activities.¹⁰⁹ An eligible person, including amongst others, the landowner or a CSG company who has a resource entitlement, application or tender may apply for a validation decision in relation to the SCL. The validation decision assesses whether the land complies with the criteria for SCL as set out in the SCLA in order to determine whether the land complies with the zoning criteria in order to be classified (or note) as SCL under the SCLA..¹¹⁰

A CSG company that holds a resource authority under the P&G Act is granted land access rights which allow them to cross land to enter the area of the authority and for the purposes of carrying out activities on the land that are reasonably necessary to allow the crossing of the land in certain circumstances.¹¹¹ However, these rights can only be exercised with the agreement of each landholder.¹¹² The only exception to the rule requiring an access agreement for access to cross the land is where the exercise of this right is reasonably required to preserve life or property due to the existence of a dangerous situation or emergency which exists or *may* exist.¹¹³ The P&G Act prohibits a landholder from unreasonably refusing to allow a CSG company to enter their land when requested.¹¹⁴ If a landholder unreasonably refuses, the matter can be referred to the Land Court for determination.¹¹⁵

Different land access requirements also apply depending on whether a CSG company is seeking access for advanced or preliminary activities. For preliminary activities, which have no impact or only a minor impact on the business or land use activities of the landholder, a CSG company may enter land by providing a written notice at least ten business days before the proposed entry unless agreement to enter earlier is provided by the relevant owner or occupier.¹¹⁶ For advanced activities, which have a significant impact on the business or land use activities of the landholder, a CSG company can only access the land by entering into an 'appropriate' conduct and compensation agreement (CCA) with the landholder.¹¹⁷ An 'appropriate' CCA is an agreement about the liability of a CSG company to compensate the landholder for the advanced activities that will be conducted on their land.¹¹⁸

Compensation under a CCA can be paid for any 'compensatable effect' which includes:

- reduction in the value of the land;
- reduction in the use made of the land;
- costs;
- damages for loss arising from the authorised activities that will be conducted on the land;
- accounting or legal costs which the landholder necessarily and reasonably incurs in negotiating the CCA; and
- any other consequential damages.¹¹⁹

A CCA must also contain provisions relating to how and when the CSG company can enter the land. A CCA does not apply where the petroleum authority holder owns the land, has another legal right to enter the land except under an easement, a deferral agreement is entered into or the entry is preserve life or property or because an emergency exists or may exist.¹²⁰

Regulating cumulative impacts in Queensland

Cumulative impacts are the successive, incremental and combined impacts of one or more activities on society, the economy or the environment. Cumulative impacts result from the aggregation and interaction of impacts on a receptor and may be the product of past, present or future activities.¹²¹ A receptor in this case is the entity experiencing or receiving the impact. This could be an individual, a town, river, industry or species. Cumulative impacts are best understood from the experience of the receptor.

Cumulative impact has been defined in the Environmental Impact Statement (**EIS**) for the Surat Gas Project as ‘changes to the environment that are caused by an action in combination with other past, present and future human actions.’¹²² The definition comes from a 1999 Canadian report produced for the Canadian Environmental Assessment Agency to assist practitioners to produce cumulative effects assessments in line with environmental assessment legislation.

CSG companies are required to consider the cumulative nature of impacts.

Cumulative social impacts

The Coordinator-General has developed a guideline for social impact assessment (**SIA**) which provides that:

The Department of State Development, Infrastructure and Planning recognises that cumulative impacts represent a challenging issue. While obvious cumulative impacts on the population, workforce, accommodation, housing, and social infrastructure can be identified in social impact assessments, government’s need to identify the exact nature of cumulative impacts at a local and regional level. It is important to further develop an understanding of cumulative impacts in order to enable government, local governments, industry and the community to better plan for the negative impacts as well as maximise likely project benefits.¹²³

The Guideline also outlines a number of factors which allow identification and understanding of cumulative social impacts, including other social impact assessments, government, community and industry initiatives and national and international best practice and research.¹²⁴

Cumulative environmental impacts

For CSG projects which have an EIS approval process, cumulative impacts are considered. However, there is no definition of what cumulative impacts are and which ones are required to be considered. Also where cumulative impacts of a project overlap in time with another project or where another project is proposed in the same area, the information available to proponents can be limited and therefore the consideration of the cumulative impacts may not be comprehensive and of limited value.

Arrow Energy’s Surat Gas Project EIS, which closed for public review in June 2012, provides a chapter on cumulative impacts which highlights the concern that ‘there is no standard methodology in Queensland for the assessment of cumulative impacts as part of an EIS and there are no specific requirements in the legislation as to how cumulative impacts should be addressed’¹²⁵ (see 3.3 later).

The Office of Groundwater Impact Assessment (OGIA) provides the groundwater management functions previously carried out by the Queensland Water Commission (QWC) following the cessation of the Queensland Water Commission’s functions on 1 January 2013. OGIA is an independent entity established under the Water Act 2000 and requires that the General Manager of OGIA carry out its statutory functions independently. It also provides for a continuation of the existing industry levy, and for revenue from the levy to be paid into a fund that is to be used by OGIA in carrying out its functions.

OGIA’s responsibilities include monitoring and assessing the groundwater impacts of the coal seam gas industry and assessing potential future cumulative impacts on groundwater and the

“Cumulative impacts”

Cumulative impacts are the total of all impacts on a community that have occurred, are occurring, and will likely occur as a result of any action or influence, including direct and reasonably foreseeable indirect impacts.

Great Artesian Basin and developing management responses that help to minimise those impacts.

Under the Water Act a Cumulative management area (CMA) can be declared by the Chief Executive of DEHP if an area contains 2 or more petroleum tenures, including tenures on which CSG activities operate and where there may be cumulative impacts on groundwater resulting from water extraction by the tenure holders. When a 'cumulative management area' (CMA) is declared in an area of concentrated CSG development where the impacts on water levels caused by individual CSG projects overlap, OGIA is required to prepare a cumulative assessment of impacts of CSG water extraction, and develop integrated regional management arrangements. These assessments and management arrangements are to be set out in an 'Underground Water Impact Report' (UWIR). When prepared, the UWIR is submitted to the Chief Executive of the Department of Environment and Heritage Protection for approval.

An example of where a CMA has been declared is in the Surat Basin and the Southern Bowen Basin which contains petroleum and CSG operations.¹²⁶ In Queensland, an UWIR has been approved for the Surat CMA. The Surat UWIR includes:

- maps showing predicted water level impacts
- an ongoing water monitoring strategy
- a management strategy for springs that could be affected by falls in water levels
- an assignment to individual CSG operators of responsibilities to carry out activities such as specific parts of the water monitoring strategy.

2.3. Framework for dealing with knowledge uncertainty

Good decision-making in the face of uncertainty is a three step process:

- deciding whether or not the project should go ahead;
- if the project should go ahead, determining the conditions to be placed on the project to address risks; and
- deciding on the framework for implementing these conditions and how risk management will work in practice.

Two methods or principles that facilitate decision-making in the face of uncertainty are the precautionary principle and adaptive management, with adaptive management also being a potential method of implementing the precautionary principle.

Precautionary principle

When deciding whether to grant an environmental authority for a CSG activity, DEHP must consider the principles of ecological sustainable development (**ESD**) set out in the National Strategy for Ecologically Sustainable Development (**NSESD**). One of the principles of ESD mentioned in the NSESD is the precautionary principle. The NSESD defines the precautionary principle as follows:

Where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.¹²⁷

The various applications of the precautionary principle can be categorised into two broad categories - strong and weak. Weaker definitions focus on uncertainty not being used as an excuse to postpone action aimed at protecting the environment such as the one applied in Queensland.¹²⁸ Requirements such as a "threat of serious or irreversible harm" and that measures to protect the environment be cost-effective are often incorporated into the definition.¹²⁹ Strong definitions often require proof of safety¹³⁰ or require action to protect the environment regardless of the cost or magnitude of risk.¹³¹ They also often assign burden of proof and liability for harm caused.¹³²

For example, the *Sustainable Planning Act 2009* (Qld) (**the SPA**) provides that all functions and powers outlined in the SPA must be carried out in a way that advances the purpose of the SPA. The SPA goes on to provide that advancing the SPA's purpose includes applying the precautionary principle.¹³⁷

In *Telstra Corporation Ltd v Hornsby Shire Council*¹³⁸ Justice Preston identified two elements that must be present for the precautionary principle to be relevant in the decision-making process and factors that should be considered:

- There must be a threat of serious or irreversible damage, taking into account:
 - the scale of the threat;
 - the magnitude of the impacts;
 - the timing and longevity of the impacts;
 - the complexity and connectivity of the impacts;
 - whether the impacts are manageable; the level of public concern and rationality of the concern based on scientific evidence; and
 - whether the impacts are reversible and the cost and difficulty of remediation.
- There must be a lack of full scientific certainty taking into account the:
 - sufficiency of evidence;
 - level and kind of uncertainty; and
 - potential to reduce uncertainty in an economic and timely manner.

The considerations that need to be taken into account when making a decision in line with the precautionary principle makes it particularly suited as a principle to be used in the first step of the decision-making process. The precautionary principle should however be implemented at all stages of the decision-making process.

Adaptive management

While a precautionary approach is required by legislation, a particular policy approach called “adaptive management” has now been adopted in a range of resource and environmental areas. With the publication of a book by Holling in 1978, adaptive management emerged as a method for managing natural resources through experimentation with a view to increasing knowledge about the resource.¹³⁹ Since that time it has become a preferred method for natural resource management as it recognises that decision-makers do not have all the information and it legitimises an experimental approach to management to reduce uncertainties and improve management through time.

The precautionary principle

The precautionary principle gained global recognition in the 1992 Rio Declaration on Environment and Development, and is rapidly crystallising into a general principle of international law, if it is not one already.¹³³ The principle is a part of domestic Australian law. There is however no agreed definition and interpretation of the precautionary principle.¹³⁴ Most definitions emphasise that “an absence of scientific certainty about the nature and likelihood of potential serious or irreversible hazards does not lead to a default position that such threats are ignored.”¹³⁵ The principle is based on the assumption that scientific certainty may be achieved too late for the implementation of effective responses to environmental threats.¹³⁶

Although adaptive management is one method for addressing unknown and unintended impacts when making important management decisions,¹⁴⁰ it is also considered by some to be a method for applying the precautionary principle. For example, the precautionary principle may be applied by adopting a management approach that involves monitoring the impacts of management or decisions based on agreed indicators, promoting research to reduce key uncertainties, continually evaluating the outcomes and results and establishing an efficient and effective compliance system.¹⁴¹ Adaptive management frameworks and the precautionary principle are not mutually exclusive methods for dealing with scientific uncertainty.

Adaptive management frameworks are distinguished from trial and error management by the specific processes that are followed when making decisions. Adaptive management has a specific structure involving setting specific goals, management objectives, hypotheses and procedures for collecting, evaluating and using data.¹⁴² It typically involves a set up phase and an iterative learning cycle.¹⁴³ The set-up phase involves:

- defining the problem, including identifying stakeholders, risks and uncertainties involved;
- determining the goals and objectives for management;
- formulating evaluation criteria for determining whether a management action has been successful;
- establishing the current state of the system for a baseline; and
- developing models on how the resource is likely to respond to different management options.

The iterative learning cycle includes:

- selecting management actions based on the constraints and the relative costs and benefits of each action;
- implementing the management actions;
- monitoring the response of the actions; and
- evaluating the actions and feeding them back into the decision making process.

Adaptive management

The aim of adaptive management is to “learn by doing” throughout the management process.¹⁴⁴ Adaptive management is not just reacting to change or “using information as it becomes available to modify decisions.”¹⁴⁵

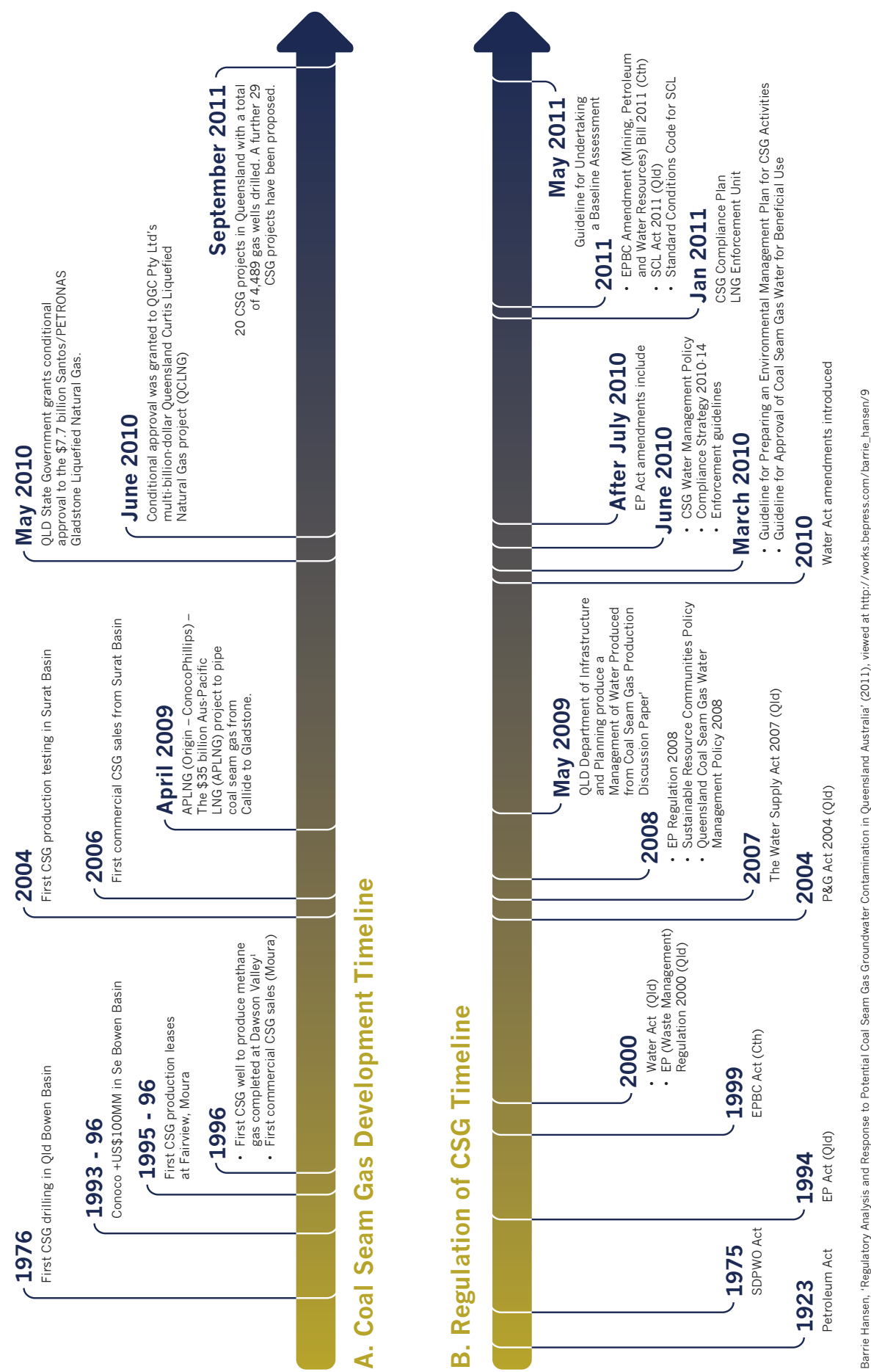
Moving through this iterative learning process as new information becomes available allows technical and institutional learning to occur.¹⁴⁶

For adaptive management to be effective there must be sufficient information to develop testable hypotheses¹⁴⁷ and external effects must be distinguishable from the effects of management actions.¹⁴⁸ Adaptive management is usually expensive so managers must be able to apply what they have learnt from one management action to the rest of the resource being managed.¹⁴⁹

The Queensland Government has stated that its CSG management framework is “based on adaptive management principles that allow changes to be made over time as additional information becomes available.”¹⁵⁰ The CSG Water Management Policy provides for the water management plan (included in the environmental management plan produced by CSG operators) to be reviewed annually. The Policy states that “this process implements an adaptive environmental management regime where management criteria are established and evaluated annually.”¹⁵¹

The Policy goes on to define an ‘adaptive environmental management regime’ as a “structured, iterative process of optimal decision making in the face of uncertainty, with an aim to reduce uncertainty over time via system monitoring and instigating change where required.”¹⁵²

Figure 1 Comparative timelines of CSG development (A) and CSG regulation (B). All legislation referred to in these timelines is Queensland legislation unless otherwise indicated as Commonwealth (Cth) legislation. Please note that there has been much legislative activity since 2011.



¹ Barrie Hansen, 'Regulatory Analysis and Response to Potential Coal Seam Gas Groundwater Contamination in Queensland Australia' (2011), viewed at http://works.bepress.com/barrie_hansen/9



3. Issues in coal seam gas governance

Although a number of positive steps have been taken by the Queensland and Australian governments to manage land use conflicts and address the environmental, social and economic impacts of the CSG industry, several regulatory gaps and governance issues remain.

Some of the key issues at project and regional levels are:

- adequacy and accessibility of scientific information;
- management of risk;
- adequacy and transparency of information relating to social and economic impacts;
- adequacy of consideration of impacts at different time scales (for example, long, medium, short term) at different spatial levels (for example, local, regional, state);
- sufficiency of consultation for determining impacts and informing decision-making;
- sufficiency of planning where mining and other issues intersect, including long-term planning against cumulative impacts.

Some of the discussion of these issues in this chapter and later chapters is based on the laws and policies that were in force prior to the introduction of the Greentape Reduction Act and other recent legislative amendments, although much of the information remains valid.

3.1. Knowledge uncertainty and environmental impacts in coal seam gas mining

Potential environmental impacts of coal seam gas mining

Although CSG production wells typically take up a small amount of space, they are often located between 500 and 1000 metres apart and are connected to a network of water and gas pipelines.¹⁵³ The gas pipelines pump the CSG to a processing facility where it is compressed and distributed to gas fired power stations or to an LNG conversion facility for export. Dams used to store produced water and infrastructure such as desalination or reverse osmosis plants also require a significant amount of space. Noise and dust associated with CSG mining can affect ecosystem health, biodiversity, human health and wellbeing and community amenity.¹⁵⁴ These impacts are amplified by the fact that the majority of CSG mining occurs in rural areas which are typically quieter and less polluted than urban areas.¹⁵⁵

Despite the fact that CSG mining commenced in Queensland in 1976, little is known about its impact, particularly the long-term cumulative impact. In July 2013, the NSW Chief Scientist called for an overhaul of workplace training, greater transparency, more rigorous regulatory enforcement, more research and a preparedness to change regulatory processes as the science advances in relation to CSG.¹⁵⁶

Water quality

Treatment and disposal of 'produced water' poses significant environmental concerns from a water quality perspective. Produced water can contain a concentration of total dissolved solids of between 200 milligrams per litre and more than 10,000 milligrams per litre compared to good quality drinking water which has a concentration of total dissolved solids of less than 500 milligrams.¹⁵⁷ Produced water can be treated using desalination or reverse osmosis, however these processes still generate highly saline water which must be reused, recycled or disposed of.¹⁵⁸ Increased salt levels may lead to salinity, sodic soil pollution, decreased infiltration, increased run off and erosion, contamination, plant dehydration, impaired root functions, promotion of invasive weed species and hardening of surface soil.¹⁵⁹

These impacts may in turn impair the productive capacity of land, particularly for agricultural crops.¹⁶⁰ In some instances, the use of evaporation ponds has led to salt storms in which salt is picked up by the wind and transported over significant distances.¹⁶¹

Water quality issues also arise in the context of potential contamination from the chemicals associated with fracking. Although not all CSG wells are fracked, the use of chemicals has caused some concern about potential contamination and risks to human health.¹⁶²

Although the Australian Petroleum Production and Exploration Association (**APPEA**) and the former Department of Environment and Resource Management (**DERM**) have released lists of the chemicals typically used in Australia for CSG fracking fluids, there does not appear to be any requirement to disclose the exact nature and composition of the chemicals being used.¹⁶³ The Queensland government has also stated that “water and sand make up about 99 per cent of fracking fluids – the remaining one per cent includes everyday household chemicals such as those used in swimming pools and as components of soap and vinegar.”¹⁶⁴ They have also stated that the majority of the fracking fluid is removed from the well once the gas extraction is completed. However, this has been questioned on the basis that it would be very difficult to control how far the fracking fluid spreads once it is injected into a well.¹⁶⁵

Much of the anxiety about fracking has arisen internationally in the context of shale gas extraction in other countries where Benzene, Toluene, Ethylbenzene and Xylene (**BTEX**) chemicals have been used in fracking fluids.¹⁶⁶ Although the use of BTEX chemicals in fracking fluid is now banned in Queensland, there have been several incidents of contamination with BTEX chemicals in CSG wells. In each of these cases, the responsible CSG company has denied that BTEX chemicals are used in their fracking fluid and that the BTEX chemicals were found in extremely small amounts that did not pose a risk to humans or groundwater.¹⁶⁷

Despite the detail of the regulatory requirements outlined in chapter 2 and the vast amount of information collected at considerable cost, there remains a great deal of uncertainty about the potential impacts of CSG mining on water quality.

Greenhouse gases

It appears that there is no clear scientific view about whether the greenhouse gas impacts of CSG mining are worse than coal and much of the debate arises from variables in the Global Warming Potential (**GWP**) that is assigned to methane and the different jurisdictions in which the studies have been conducted.

The Queensland government has stated that CSG and LNG present low emission alternatives to coal.¹⁶⁹ On the other side of the debate, some farmers and environmentalists argue that CSG cannot be considered a low emissions alternative when all emissions are considered.¹⁷⁰

Knowledge uncertainty

An initial lack of knowledge about many of the potential impacts of CSG mining has led to the development of a number of research initiatives that aim to develop a better understanding of the effect of CSG mining on current environmental conditions. Some of these projects have been funded directly by the CSG industry while others have been undertaken at the initiative of non-government organisations. Much of the debate about the impacts of CSG mining has arisen because different results have been obtained by all the “different groups proceeding independently and undertaking their own risk assessments and predictive modelling, using their own assumptions and databases.”¹⁶⁸ A good example of this is the research being conducted in relation to the groundwater and greenhouse gas impacts of CSG mining.

There are two issues to consider when determining whether CSG has lower emissions compared to coal.¹⁷¹ The first issue is what the correct GWP is for methane.¹⁷² GWP represents the warming effect of a particular gas when compared to carbon dioxide.¹⁷³ A number of different figures can be generated for any one gas depending on which time horizon is used to calculate the GWP.¹⁷⁴

The second issue is whether life cycle emissions, including “emissions from combustion and consumption of fossil fuels during extraction, processing and transport,”¹⁷⁵ are accounted for. There are a number of recent studies that have compared the life cycle emissions of natural gas and coal but few of them have addressed CSG extraction in Australia.¹⁷⁶ One study commissioned by the CSG industry in Australia compared the emissions of CSG and black coal in export streams and concluded that CSG has some advantages over coal but only when used in electric power generation.¹⁷⁷

The Great Artesian Basin

It is estimated that the entire GAB holds 116,000 gigalitres of water.¹⁹¹ The Queensland government states that based on an average annual extraction of 125 gigalitres, CSG mining will extract approximately 2,500 gigalitres over the life of the industry¹⁹² whereas the National Water Commission (**NWC**) argues that the figure is closer to 7,500 gigalitres.¹⁹³

For shale gas, some of the studies have shown that the emissions benefit can be anywhere between 21% and 59% compared to coal depending on which time horizon is used for GWP,¹⁷⁸ while others have concluded that “the greenhouse gas footprint of shale gas approaches or exceeds coal even when used to generate electricity.”¹⁷⁹ However the author of one study notes that the processes used to extract shale gas vary significantly to those used to extract CSG.¹⁸⁰

One of the more recent studies by the Climate Institute concludes that while the emissions from Australian CSG have not been well researched, differences in production processes, regulatory frameworks, geology and infrastructure suggest that emissions from Australian CSG could be lower than those of shale gas in the United States.¹⁸¹ However, the study also notes that both industry and conservationists are making their arguments about CSG emissions based on inadequate information and there is an urgent need for “robust, independent research into the emissions profile of CSG production in Australia.”¹⁸²

A recent study assessing the fugitive gas emissions of CSG mining was undertaken by Southern Cross University.¹⁸³ This was the first independent observation of greenhouse gases in the atmosphere of a CSG field in Australia.¹⁸⁴

The study was done in the Tara region in Queensland, mapping the atmosphere of a production CSG field.¹⁸⁵ The results showed a widespread enrichment of both methane and carbon dioxide within the production gas field compared to outside the gas field.¹⁸⁶ This provides strong evidence for significant, but still unquantified, greenhouse gas emissions in the region.¹⁸⁷

Concentrations of methane as high as 6.89 parts per million were recorded in the field, compared with levels of less than 2 parts per million outside the production field. Carbon dioxide as high as 541 parts per million were recorded.¹⁸⁸

The report hypothesises that the depressurisation of the coal seams during gas extraction changes the soil structure which in turn enhances the release of greenhouse gases (such as methane and carbon dioxide).¹⁸⁹ The author highlights the need for baseline studies prior to gas field development and stresses the need for the gathering of in situ measurements.¹⁹⁰

Aquifers

Similarly, research on the connectivity of coal seams and aquifers suggests that different results may be obtained depending on which assumptions and modelling is used.

Water is extracted from the underground aquifers. One such aquifer is the Great Artesian Basin (**GAB**), which underlies Queensland, New South Wales and South Australia. It supports a number of essential needs.¹⁹⁴ The GAB consists of a number of sediments that form aquifers. Layers of low permeability sediment called aquitards sit adjacent to the aquifers. The GAB is:

not a vast underground 'sea' in which levels and pressures quickly and uniformly adjust to the extraction of water from one part. Rather, the GAB is a highly complex system of geological formations at a range of depths of variable permeability holding water of different quality, at different pressures and through which water flows at very different rates, if it flows at all.¹⁹⁵

Given the structure of the GAB, water which is removed during the dewatering process is extracted from the coal seam itself, which is often much deeper than the aquifer.¹⁹⁶ Notwithstanding this, there are some concerns that the quantity of water removed may result in the loss of water supply to landowners and townships¹⁹⁷ due to a lowering of pressure which in turn may cause:

- the water levels in the layers surrounding the coal seam to change;¹⁹⁸
- a pathway to be created between the aquifer and the coal seam or other overlying aquifers¹⁹⁹ which can result in methane and other gases migrating from the aquifer into water bores,²⁰⁰ or
- subsidence and aquifer or coal seam leakage.²⁰¹

In view of the complex nature of the GAB, these potential impacts could take years to become visible. Although the GAB is 'recharged' naturally with rainfall, this process can also take decades or even centuries to occur.²⁰²

The fact there are several conflicting studies about the connectivity of coal seams to aquifers highlights²⁰³ the "significant gaps in our knowledge of the system and modelling currently used to assess the impacts of CSG extraction."²⁰⁴

The complexity of the GAB and the lack of appropriate baseline data also mean that the cumulative impacts of multiple CSG mining operations are very difficult to assess. Geoscience Australia and the National Water Commission (**NWC**) have noted that the current groundwater modelling is inadequate²⁰⁵ "and the cumulative effects of multiple projects are not well understood."²⁰⁶ In areas where there are no bores, there is no baseline data and as such, it is even more difficult to identify and assess cumulative impacts.

This situation is further complicated by the fact that the GAB itself is not considered to be of national environmental significance. However, amendments which were introduced in 2013 propose to include 'water resources' as a new type of matter of national environmental significance. 'Water resources' are defined broadly to include surface water, ground water, a watercourse, lake, wetland or aquifer and as such, may extend to the GAB. If a CSG project is likely to have a significant impact on water resources, including salinity and salt production, it must be referred to the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development for advice before the Minister can make a decision about whether the project should be approved.

Some CSG projects could also trigger the operation of the EPBC Act where, for example, a threatened ecological community of national environmental significance relies on the GAB for its survival. However, the Commonwealth is yet to recognise this interpretation when making decisions about whether a particular development requires assessment and approval under the EPBC Act.

Several research initiatives have been established to attempt to fill this knowledge gap:

- The Queensland Water Commission (QWC) prepared an **underground water impact report** for the area in the Surat Basin that has been declared a cumulative management area (**CMA**).²⁰⁷ The underground water impact report includes significant information about the quantity of produced water, the aquifers which are affected or likely to be affected by the CSG activities, a summary of the water bores contained in the area and a water monitoring strategy.²⁰⁸
- The **Healthy Headwaters Program** is an initiative of the Australian government which funds priority water projects. Funding has been provided to undertake a CSG water feasibility study which analyses the opportunities for, and the risks and practicability of, using CSG water to assist in achieving the long term goals of transitioning irrigation communities to lower water use.²⁰⁹
- As explained above, the Australian Government has established the **Independent Expert Committee on Coal Seam Gas and Large Coal Mining Development** that will provide scientific advice to the government about CSG approvals where the CSG projects involved are likely to have significant impacts on water.²¹⁰
- The **Gas Industry Social and Environmental Research Alliance (GISERA)** is an initiative of the Commonwealth Scientific and Industrial Research Organisation (**CSIRO**) and Australia Pacific to research the environmental, social and economic impacts of the natural gas industry.²¹¹
- The Sustainable Minerals Institute **Centre for Coal Seam Gas** at the University of Queensland was recently established to undertake research and education activities in relation to CSG and LNG. The Centre is funded by the CSG industry and its research will initially focus on the areas of water, geophysics, petroleum engineering and social impact.²¹²

3.2. Managing impacts and uncertainty

Changes to the EIS process under the Greentape Reduction Project

Several recent changes to the EIS process made as part of the Greentape Reduction reforms affect the ability of the EIS process to address all impacts in the decision-making process:

Generic terms of reference

The revised 'generic terms of reference' for both Coordinated Projects and projects requiring an EIS under the EP Act (**Generic ToR**)²¹³ have been reduced from 100 to 25 pages of requirements. The Queensland Government's intention was for a 'less prescriptive approach, with the EIS now addressing high risk issues'.²¹⁴ The effect is that potential issues or impacts which fall outside the reduced "high-risk" criteria will likely not be assessed during the EIS process. Changes in the Generic ToR include:

- Detailed treatment is now only given to critical matters falling within the scope of the Generic ToR. This includes matters:
 - with a high or medium probability of causing serious or material environmental harm;
 - with a high probability of causing an environmental nuisance;
 - considered contentious in the public domain; and
 - identified (in a referral decision) as a specific controlling provision under the EPBC Act.
- These revised criteria do not include matters which:
 - have a low probability of causing serious or material environmental harm;
 - have a low to medium probability of causing an environmental nuisance; or
 - may cause environmental harm.
- The Generic ToR no longer require a 'Project Need, Costs and Benefits' section, or an 'Alternatives' section of the EIS describing conceptual, technological and locality alternatives to the project.
- Under the previous ToR (**Previous ToR**) an EIS was required to include a wide-ranging assessment of the cumulative impacts of the whole project. Now, the Generic ToR state that

‘to the extent of the information available’ the EIS ‘should endeavour to predict the cumulative impact of the project on environmental values over time’ but that ‘the absence of a comprehensive cumulative impacts analysis need not be fatal to the project’²¹⁵.

- The Previous ToR required the EIS to state how the reader should make submissions on the EIS (and provide contact details), what form the submissions should take, and when submissions must be made to gain standing for any appeal process. The Generic ToR require only that the EIS inform the reader how and when properly made public submissions on the EIS will be addressed and taken into account in the decision-making process.
- The Previous ToR required an EIS to include an analysis of how the project ‘conforms to the objectives for ecological sustainable development (**ESD**) under the “*National Strategy for Ecologically Sustainable Development (1992)*”, with the analysis to consider the cumulative impacts (both beneficial and adverse) of the project from a life-of-project perspective, taking into consideration the scale, intensity, duration or frequency of the impacts to demonstrate a balance between environmental integrity, social development and economic development.’ This requirement has been removed from the Generic ToR.

Public consultation and stakeholder involvement

The Previous ToR outlined comprehensive stakeholder involvement and public consultation requirements. This involved a dedicated public consultation section to be included in the EIS, including the methodology that will be adopted to identify Stakeholders and their involvement, the public consultation process to be conducted, and how consultation involvement and outcomes will be integrated into the EIS.

The current Generic ToR state that the EIS ‘should describe the consultation that has taken place and how the responses from the community and agencies have been incorporated into the design and outcomes of the project’.²¹⁶ Further requirements for public consultation are included in the document ‘Preparing an environmental impact statement: Guideline for proponents’ (**EIS Guideline**),²¹⁷ which includes streamlined stakeholder consultation requirements.

EIS requirement

When considering a site-specific application for a new EA for a petroleum activity or a major amendment to an EA, DEHP may require, in an information request, an EIS to be carried out.²¹⁸ In making that decision it must consider the standard criteria. DEHP has issued guidelines for when an EIS is likely to be required (**EIS Trigger Guideline**). The triggers stated in the guideline for petroleum and gas activities are that the project will disturb an area of greater than 2000 hectares, involve the construction of a high pressure pipeline over a distance of 300 km or **greater**, or involve the construction of a liquefied natural gas plant. Ultimately, it will be a matter of discretion for DEHP as to whether an EIS is required for a petroleum activity.

Social Impact Assessment

Under the Social Impact Assessment guidelines (**SIA Guidelines**), revised as part of the newly streamlined EIS process, an SIA will only be required if stipulated in the ToR.²¹⁹ Social Impact Management Plans (**SIMP**) required under the previous SIA guidelines (**Previous SIA guidelines**) for new or expanded major resource development projects requiring an EIS,²²⁰ have been removed from the SIA process.

The Previous SIA guidelines stated a SIMP must include ‘Mitigation Strategies developed in collaboration with relevant parties, enabling improved interaction between key stakeholders in resource communities,’ and ‘support, strengthen or link to existing local, regional and state government plans, strategies and programs, especially at the local and regional level in order to ensure greater certainty of outcomes and to increase the level of awareness and collaboration between all parties wherever possible.’²²¹ The SIA Guidelines simply state that ‘Mitigation

Strategies' must include, 'significant stakeholders,' and 'outcomes, performance indicators and targets.'²²²

Role of the EIS in addressing impacts and dealing with uncertainty

Some commentators have suggested that EIS "not only forces environmental knowledge into the policy process, but also reveals the inadequacy of the information upon which society and governments propose to act."²²³ The legislative requirements of the EIS process only require limited consultation and generally this only occurs with landholders who are directly affected. Under the Greentape Reduction reforms, the bulk of the public consultation requirements have been moved from the ToR to the EIS Guideline, creating the situation where those public consultation requirements are non-binding 'recommendations'.

Most of the information which is used to assess the impacts of CSG activities in an EIS is researched, prepared and presented by CSG companies themselves. The fact that CSG companies are responsible for preparing the EIS, and that counter arguments are prepared by other stakeholders, creates the potential for bias and a perception of partiality.

Although CSG companies are responsible for preparing their EIS, the task often falls to consultants who are engaged to undertake assessments in their various areas of expertise.²²⁴ Sections of the EIS prepared by consultants are reviewed by the proponent before being finalised and issued. In many cases, the final EIS document is compiled by other consultants who take the technical reports and condense them into a shorter and more concise document, which is more readable. However, there also is a risk of presenting a different emphasis to the information.

Some argue that reliance on experts has lead to a technocratic approach to environmental governance that promotes a value free analysis of environmental impacts at the expense of more widespread public involvement in the decision-making process.²²⁵

However, the arguments in favour of the project proponent retaining responsibility for preparing the EIS include efficiency, cost and the opportunity for modifications to be made during the assessment process in order to mitigate environmental impacts.²²⁶ With modifications to the project being able to be made during the assessment process, it increases the focus of the EIS as an 'approval step' and therefore instead of *whether* a project should proceed, *how* a project will proceed.

The large volume of technical information is also difficult for people to understand, particularly in the short time frames provided. For example, the EIS for the Santos Gladstone LNG Project cost millions of dollars, took 18 months to prepare and was over 13,500 pages long.²²⁷ The public was given eight weeks to read and comment on it.²²⁸ Prior to this, the proposed terms of reference and initial advice statement for the EIS had been open for public comment for four weeks. A supplementary EIS was also prepared for the project and was open for public comment for six weeks.

Small groups and individuals are unlikely to have the necessary resources to acquire the level of expertise which is required to comment on these types of proposals, particularly in such a short timeframe.²²⁹ It is also difficult for small groups and individuals to afford legal assistance to comment on the EIS and other approval processes. A rare example of where it was possible for a small group to obtain expert assistance involved the Bimblebox Nature Refuge where a small group of concerned citizens were able to obtain an economic analysis of the China First mine proposal.²³⁰ This is very much the exception rather than the rule. It is rare for landholders to be able to afford such expert help to properly scrutinise CSG projects.

The timing for preparing an EIS can also have an impact on the quality of information that is available during the decision-making process. Proponents will often undertake assessment of the environmental impacts of a project once a final investment decision has been made and

detailed design is at a point of being finalised. While this might seem logical from a business perspective given the high costs associated with undertaking an environmental assessment, it severely limits the scope of changes or solutions that can be proposed or considered as part of the EIS and there is no preliminary process outside the EIS that allows for development of creative solutions or incorporate local knowledge.²³¹

The EIA process occurs at the establishment phase of proposals and there is no similar process to provide community input into projects after extraction has commenced.

Framework for dealing with uncertainty

The debate about the framework for dealing with uncertainty appears to have arisen because there is confusion about the meaning and application of adaptive management and the precautionary principle (see 2.3 above) as methods for dealing with situations where information about potential impacts is unavailable or where uncertainty exists.

There are differences of opinion about how to approach risk. The precautionary approach involves limited action until more is known while adaptive management permits cautious action in the light of available knowledge.

Application of the precautionary principle to coal seam gas projects

It is unclear how the precautionary principle is applied by DEHP when making decisions about environmental authorities for CSG activities. In NSW, this issue has arisen in an application for judicial review of a decision made by the Planning and Assessment Commission (**PAC**) to approve the first stage of a CSG project proposed by AGL.²³² Although the legislative regime in NSW is not the same as in Queensland, the PAC is still required to consider the precautionary principle when making decisions about whether to approve a development. In this case, the applicant alleged that the PAC failed to consider the precautionary principle in that it approved the project on the basis of only preliminary groundwater investigations and delegated certain decisions about groundwater to someone else at a future time once additional studies have been completed.²³³ The case was decided in September 2012. The NSW Land and Environment Court dismissed the application and held that the project approval was valid. The Land and Environment Court held that:

It cannot therefore be said that the PAC failed to consider ESD principles and in particular, the precautionary principle, in relation to groundwater. Nor can it be said, in my view, that the PAC had insufficient information before it to make an informed decision in this regard. The material before the PAC contained an extensive analysis of the issues concerning groundwater, which resulted in the imposition of conditions aimed at ensuring that appropriate measures were adopted and implement having regard to the precautionary principle.²³⁴

A similar approach is used in relation to development approvals in Queensland. For example, it is arguable that baseline research and the development of codes of conduct and safety standards should have been prepared before granting production approval to CSG companies. Instead, such codes and standards appear to have been developed and implemented concurrent to CSG development.²³⁵ As illustrated in Figure 1, above, commercial CSG development began in the 1990's before the P&G Act commenced in 2004 (many of these approvals would have been issued under the *Petroleum Act 1939* (Qld)) and amendments to the Water Act took effect in 2010 that require specific management plans for CSG water. The fact that CSG development was and is permitted prior to the development of any clear plans for dealing with CSG water, suggests that a less precautionary approach was and is being taken.

A further example is the Coordinator-General's report on the EIS²³⁶ for the Queensland Curtis LNG Project which concludes that the Coordinator-General is not satisfied that the impacts of the CSG fields on biodiversity will be manageable, but goes on to approve the project on the condition that management plans be updated as they receives more reports.²³⁷ This highlights

the fact that the Coordinator-General has no clear policy on considering the precautionary principle when determining acceptable risk of a project.

Submissions to the Senate Rural Affairs and Transport References Committee's Inquiry into the Management of the Murray-Darling Basin (*MDB*)²³⁸ suggest that members of the public do not believe that the precautionary principle has been applied by decision-makers when approving CSG projects.²³⁹ If correct, the decision-making process is not sufficiently transparent to allow members of the public to see where and how the precautionary principle has been applied and to properly engage with decision-makers so that the level of acceptable risk reflects that of society in general.

Application of adaptive management to coal seam gas projects

It is difficult to assess the appropriateness of the frameworks when there is so little available information about the adaptive environmental management regime (see 2.3 above) that is being used by the Queensland Government.

From the information available, it is not clear to what extent elements of the set-up phase, such as clearly defining an hypothesis and model of how CSG is likely to impact water resources, are incorporated into the iterative learning cycle. There are also problems with the effectiveness of parts of the management regime which appear to be part of the iterative learning cycle. For example, the joint responsibility of DEHP, DNRM and the CSG companies means evaluation occurs at different times in the management cycle. Evaluation occurs during both the implementation and evaluation stage, but there is no mechanism for this to then feedback into the beginning of the adaptive management cycle where goals and objectives are determined. With different CSG companies planning and implementing their own Environmental Management Plans (**EMPs**) and then reporting to DEHP on their effectiveness, there also appears to be little opportunity for learning about the practicalities of CSG water management and sharing of knowledge.²⁴⁰ There are also concerns with accountability and transparency. Individual CSG companies are responsible for a management plan in which they determine how the plan will be implemented and how they will evaluate their compliance with the plan.

In her analysis of the adaptive management approach to CSG, Swayne argues that:

It is clear that the Queensland approach does not exhibit all the necessary hallmarks of a true adaptive environmental management approach. Overall objectives and key performance indicators are critical prerequisites for an effective adaptive management approach and are missing from the Queensland response. Similarly, any parameters for the evaluation and adjustment of the current regulatory framework have not been released into the public domain. The Queensland approach is further weakened by the failure to integrate the principles of adaptive management into the Queensland legal framework leaving a potentially fatal disconnect between the decision making and approval processes under the legislation and the broad adaptive management principles located within the Queensland Government's policy documentation.²⁴¹

There is also the question of whether adaptive management is an appropriate strategy to use for the management of groundwater systems that are likely to be affected by CSG mining. Groundwater systems usually take a long time to respond to water extraction,²⁴² which makes it difficult to assess the collective impacts of CSG mining and for responses to management actions. For adaptive management to be effective, stakeholders must also agree to a flexible approach to managing the resource. CSG development has however turned into a "wicked problem,"²⁴³ with some community interest groups opposing CSG mining altogether.²⁴⁴ In this situation stakeholders are unlikely to agree on a process for continually monitoring the results of the groundwater management regime and improving it as new information becomes available.²⁴⁵ As a management strategy, adaptive management is not designed to take into account conflicts in stakeholder values and differences in opinion regarding acceptable risk and uncertainty. It may also be inappropriate where there are risks of irreversible harm.

From the information available regarding the management of CSG water and groundwater, it is difficult to determine whether a satisfactory adaptive management framework is being implemented. Swayne takes the view that:

While raw data is currently being collected and reported within Queensland, it is less clear how the Government intends to determine whether, and to what extent the existing regulatory approach requires adjustment in response to this information. This is a clear weakness in the Queensland regulatory response. The cumulative effects of CSG projects across regional basins are currently unknown and warnings have been given that this could result in a significant reduction in recharge flows and basin pressures.²⁴⁶

How closely management is to an iterative, learning process depends on the content of each EMP and whether there are opportunities to learn from management actions. There are also issues regarding:

- accountability and transparency when the regime is largely based on self assessment; and
- whether adaptive management is even an appropriate management framework to use.

3.3. Inadequate consideration of social and economic impacts

Direct economic and social impacts

The economic benefits of CSG are significant. The Queensland government estimates that the state will receive \$850 million in royalties from CSG sold as LNG²⁴⁷ and that there will be additional private investment of \$40 billion over the life of the industry, which is expected to last 20 to 30 years.²⁴⁸ Four of the major CSG projects are alone expected to generate over 18,000 direct and indirect jobs including 4,300 jobs in regional areas such as the Darling Downs and South West Queensland.²⁴⁹

However, there are downsides. While there is an increase in employment and population, concerns about community infrastructure, cost of living increases, affordable housing and skills shortages in mining communities remain a live issue. And while economic development is positive, land access conflict, agriculture and mining coexistence, water quality and other environmental concerns raise potential economic negatives.

The Darling Downs Regional Plan acknowledges these concerns and points to some broad strategies to build community infrastructure. For example, the plan encourages local authorities to release more land for housing, but the plan does not appear to back this with money except for community infrastructure, roads and flood mitigation (under the *Royalties for the Regions* program). As one councillor noted:

I think we as a council and not just our council but any council that's going through this huge change and all of a sudden has to have all this extra stuff and all of this extra things that we have to do now, but our rate base isn't really changing that much, and for it to be on the heads of everyone who's paying rates is difficult. We as a council have got some really good staff who are working hard at trying to make it so that those that are causing the problems are paying the rates – paying their fair share – but some of it should be and could be coming from State and Federal Government – they're the ones getting the taxes from all the [developments].²⁵⁰

There are other economic concerns that have received little public attention. There is a possibility that once Queensland has finished its liquefaction plant development and exports gas to international markets, the wholesale price of gas will increase significantly through export parity pricing and consequently increase the retail price for Queensland consumers.²⁵¹

In addition, a possible reason for the haste in Queensland to develop gas reserves is that the US is expected to become energy self-sufficient and a net energy exporter by 2017, including coal seam gas and shale oil. There will be intense competition for Asian markets, which will potentially bring down prices and undermine the value of the Australian industry.

In USA, over-production of gas from all sources has led to a steep decline in price and therefore a reduction in profitability, leading some producers to leave the industry and resulting in local disruptions and job losses.

The framework for managing the groundwater impacts of CSG mining also poses a number of economic issues. 'Make good' agreements are negotiated privately between the landholder and the CSG company. Swayne argues that:

It is significant that the Queensland Government has left the obligation to require specific remediation of groundwater in the hands of the landholders (who will not have the cumulative data and knowledge of the QWC) rather than in the hands of the regulators. The Queensland Government is not responsible for directing the CSG operator to take steps to make good the damage and if the landholder chooses compensation over remediation then the groundwater resource could remain permanently effected.²⁵²

In relation to groundwater, if there is no bore, there are no baselines and no appropriate pathway for responsible remediation of natural creeks.

The cost of remediation on a broader scale is rarely factored into the costs of a development and is usually borne by the community rather than the developer.

The CSG industry has the potential to have a negative economic impact on the property market. In his book, *Too Much Luck: The mining boom and Australia's future*, Paul Cleary cites an example of a landholder at Tara who attempted to sell his property after claims that the CSG company operating on his land had not complied with their agreed obligations.²⁵³ The landholder stated that as soon as prospective buyers found out about the CSG operations on his land, they lost interest in purchasing the property.²⁵⁴ This issue was also canvassed by several of the submitters to the Senate Inquiry on the Impact of CSG Mining on the Murray-Darling Basin (**MDB**).²⁵⁵

The Global Innovation Index (**GII**), developed by economists at Cornell University, INSEAD and the World Intellectual Property Organisation, measures the innovative capacities of 142 world economies, particularly spending on research and development. Its latest annual report shows that emerging markets are spending more on R&D than richer nations and mentions the "resource curse", where resource rich nations are low in the GII rankings because more is spent on oil and gas investment. Australia features in the GII leaders group with a relatively high per capita GDP, but is rated as an inefficient innovator.

In the longer-term, as the price of fossil fuels continues to rise and renewable energy becomes cheaper,²⁵⁶ there is the potential for gas and coal extraction to become inefficient and uneconomical, yet Australia may not be well-placed to capitalise on the emerging renewables industry.

There are also a number of other social and economic impacts. The presence of CSG wells and associated infrastructure on a farm can disrupt agricultural production, necessitate changes to farming practices and create uncertainty about the long term viability of agricultural businesses.²⁵⁷ The compensation paid to landholders may be insufficient to ameliorate the full range of impacts which are experienced, including:

- increased cost of transport;
- nuisance;
- the economic impact on farming enterprises
- uncertainty regarding the sustainability of rural society;
- lack of consideration of the value of farming in itself;
- the limited pool of people to take on agricultural tasks; and
- skill shortages and long term loss of agricultural knowledge.²⁵⁸

The ability of CSG companies to access land may lead to a loss of security and in many cases is likely to be unsettling for the families and communities involved. For these reasons, many farmers and farming communities have expressed vocal opposition to CSG mining.

CSG mining is also often associated with an influx of non-resident workers. As at November 2011, there were over 150,000 non-resident workers employed by the resources sector, which includes the CSG industry.²⁵⁹ These workers can place increased pressure on local infrastructure and increase the cost of local services and housing through associated wage increases.²⁶⁰ However, the workers can also bring more money and business to local communities.

These concerns have been highlighted in a recent *Uniting Care* analysis of interviews and surveys conducted with employees and stakeholders. It suggests “the mining and gas resources boom exerts high pressure on the human services industry”, including that “mining and gas operations:

- increase costs of living
- force employees and clients into insecure rental accommodation
- reduce UnitingCare Queensland’s ability to provide services in certain contexts
- create a reduced supply of volunteers, and
- create higher staff turnover rates.”²⁶¹

Interviewees reported that mining and gas operations had altered the character and composition of local communities through:

- the influx of non-resident workers;
- outflows of long term and older residents, who had left town because of the rising cost of living;
- a declining pool of volunteers, which impacts on the quality of care and service that is provided and on stress levels of paid staff;
- an acute sense of powerlessness, particularly for long-term residents and people on the land who claim to suffer sustained noise, light and particulate pollution.

The study found that the shadow population of non-resident workers increases pressure on local services, lowering the economic base and impacting on local government budgetary allocations and planning.

However some respondents also emphasised the benefits of mining:

One human service manager in Miles is clear that although the resource boom has brought a host of challenges to her community there are “lots of positives.” She specifically mentions plans that the Swiss mining transnational Xstrata has to build a multi-purpose training centre located at the local school which she hopes will attract families to places like Miles for the longer-term.²⁶²

This training centre and other facilities have been constructed by mining companies operating in a number of regions.

Social impact assessment

The *Uniting Care* report states:

Social Impact Plans (**SIMPs**) apply to the construction, commissioning, operation, and the recommissioning of a resources project. They are a policy framework that mandates stakeholder involvement. However feedback from community representatives suggests there is poor knowledge of the social impact process in comparison to environmental impact assessment and management. One possible reason is because SIMPs are not supported by legislative requirements. There is no existing legislation which allows a mine to be stopped on the basis of adverse social impacts.

Although human service organisations are occasionally listed as stakeholders they are not in a position to negotiate successfully and their involvement is tokenistic. For instance, Blue Care is

listed as a stakeholder for QGC's SIMP but managers in Rockhampton and Gladstone claim no knowledge of this and no existing relationship with QGC. However, local organisations and NGO networks have expertise in impacts on communities and how these could be mitigated. This suggests the need for a joint approach across the non-government sector but there is currently no mechanism for such activity.²⁶³

As explained in chapter 2.2 above, for all CSG 'significant' projects which require an EIS, a Social Impact Assessment (**SIA**) may be required (an EIS that is prepared under the EP Act must also consider the social impacts of the proposed development but there is no requirement to prepare a separate SIA). The SIA forms part of the EIS and must address community and stakeholder engagement, workforce management, housing and accommodation, local business and industry content, and health and community wellbeing.²⁶⁴ As stated above at 3.2, the SIA process has been streamlined as part of the Greentape Reduction reforms, and although social impacts are required to be assessed, the ToR may stipulate that an SIA need not be carried out as part of the EIS for that project. Completion of a SIMP, which was previously required for new or expanded major resource development projects requiring an EIS,²⁶⁵ has also been removed from the SIA process.

The social and economic aspects of the EIS have been criticised for not being properly investigated and monitored as environmental impacts.²⁶⁶ O'Faircheallaigh argues that SIA has not been adequately incorporated into decision-making because although SIA findings are conveyed to the Government, the response to the findings is often influenced by other sources of information such as political directives and lobbying by project proponents.²⁶⁷

This view is also supported by primary research and social case studies. In interviews conducted by Carrington as part of a larger research project on the social impacts of the resources boom on rural communities, several of the participants "urged relevant government stakeholders to take a more active leadership role in mitigating the impacts of mining development."²⁶⁸ A qualitative social impact assessment study of several mining towns in the Bowen Basin also demonstrated that "while the mining boom has been generating social and economic impacts, the pattern of impacts appears to vary across communities depending on the size of the impact, community structure and history and the extent to which a non-resident workforce is present."²⁶⁹

3.4. Cumulative social, environmental and economic impacts

Looking at social, environmental and economic impacts as cumulative impacts permits assessment of impacts on larger environments or systems. Cumulative impact assessment has grown from disciplines that were originally isolated, where social, environmental and economic analysis was conducted independently and produced individual impact assessment reports. As knowledge grows about the direct and indirect effect of these fields on one another, the methods for assessing the interaction of social, economic and environmental impacts are evolving as well.

Carrington argues that "the cumulative social impact of multiple project developments involving numerous companies operating in the same region is currently outside the EIS assessment process and guidelines."²⁷⁰

Cumulative impacts can be positive or negative. Examples of positive impacts that have the potential to be cumulative include:

- increased employment;
- development of employable skills;
- investment in environmental conservation.

Examples of negative impacts include:

- pressure on existing social services such as schools and hospitals;

- deterioration of rural community – skill and knowledge shortage;
- road degradation from heavy vehicles;
- reduced air quality.

Recent policy and legislative changes do not appear to offer any better opportunities for understanding cumulative impacts. Under the Generic ToR revised as part of the Greentape Reduction Project, cumulative impact assessment is only required in an EIS ‘to the extent of the information available’, and ‘should endeavour to predict the cumulative impact of the project on environmental values over time’, however ‘the absence of a comprehensive cumulative impacts analysis need not be fatal to the project’.²⁷¹

The Sustainable Minerals Institute report *Energy from the Food bowl: An Uneasy Coexistence. Identifying and Measuring the Cumulative Impacts of Mining and Agriculture*, highlights the inherent tensions in managing the cumulative impacts of multiple industries such as agriculture and mining. Drawing on the views of stakeholders in the Darling Downs, it suggests that science will be unlikely to assist in the face of uncertainty and conflicting values.

There are significant barriers to achieving co-existence of agriculture and resource extraction that are not easily overcome. These barriers include contrasting values amongst stakeholders, associated lack of common language, and a prevailing lack of trust. They underpin some challenges confronting those responsible for managing the changes associated with the development of new industries, such as mining and CSG extraction, in predominantly agricultural rural areas.²⁷²

Assessing cumulative impacts is considered in more depth in chapter 4 of this paper.

Case study: Arrow Energy, Surat Gas Project, Cumulative Impact Assessment – Air Quality

The Surat Gas Project is a proposed coal seam gas exploration, development and production project in the Surat Basin west of Brisbane. Arrow Energy lodged a draft EIS for the project in December 2011, which was approved by the Queensland Government for public review from March to June 2012.

Arrow lodged the draft EIS for the Surat Gas Project in December 2011. This was approved by the State Government for public release in March 2012. Submissions are now closed. Included in the draft EIS is a chapter on cumulative impacts.²⁷³ The chapter begins by noting the lack of a standard method or regulations on how to assess cumulative impacts. Here is a brief description of how Arrow Energy assessed the cumulative impacts on air quality.

The criteria used for assessing whether an impact should be assessed as a cumulative impact:

- the existence of a residual impact after Arrow Energy mitigation measures;
- the impacts would be effected by other future developments within the same spatial and temporal scope; and
- the social and environmental impact is considered important for inclusion.

The chapter took into consideration 16 other developments in the area and assessed 13 different social, socio-economic and environmental impacts. The result of each assessment was a prediction on whether the cumulative impact would be worse or better than if the project was assessed in isolation.

In relation to air quality, it was noted that the impacts of nitrogen dioxide, dust and carbon dioxide would all be worse than if the Surat Gas Project was considered in isolation. The assessment gave some predicted emission rates and concluded that the nitrogen dioxide levels would be within the prescribed health objectives, dust would be managed with suppression measures and carbon dioxide emissions would not have a significant effect on climate change.

There appears to have been some modelling on nitrogen dioxide emission and the existence of environmental standards against which these can be compared. Dust and particulate matter, however, is predicted to be worse but with no management plan beyond standard suppression measures. As for global warming, ‘a cumulative impact writ large’,²⁷⁴ it is arguable whether the ‘significance or risk will likely

remain negligible.²⁷⁵

Some points that should be considered about the method used by Arrow Energy to assess the cumulative impacts of the Surat Gas Project include:

- the assessment only considered recent and future developments and not existing projects;
- only developments that were related to coal seam gas were considered and established industries such as agriculture were ignored;
- there was insufficient data to undertake a meaningful assessment;
- there were no regional standards to assess cumulative impacts against; and
- the hierarchy of important impacts was decided by the company and not those who will be most effected by the impacts.

3.5. Limited consultation and participation

Participation at different levels of decision-making

There are limited opportunities for meaningful contribution to, and public participation in the assessment processes related to CSG mining. The opportunities for public participation can be divided into three main categories – calls for public consultation and comment (for example, through the EIA process), participation in committees and other organisations and negotiation and litigation. These categories are outlined further below.

Calls for public consultation and comment

There is no opportunity for the public to comment during the process of granting resource authorities under the P&G Act. However, as discussed in chapter 2.2, if a project is declared ‘coordinated’ the Coordinator-General may set a period during which a submission on the EIS may be made.²⁷⁶ If a project is not declared ‘coordinated’ an EIS will be required under the EP Act for CSG projects:

- that are likely to have a significant impact on an environmentally sensitive area;
- that involve the construction of pipelines of more than 150 kilometres in length; and
- for projects involving high hazard dams or the injection of waste fluids into aquifers.²⁷⁷

For the above CSG projects for which an EIS is required, members of the public often face difficulties in accessing the relevant information that is required to make a meaningful and informed submission, and the cost of participating in the decision-making process can deter people even further. The draft terms of reference and the finished EIS are made available for a minimum of thirty days and public notices placed in newspapers are used to advertise the start of the period.

The Department of Environment and Heritage Protection (**DEHP**) is required to keep applications for environmental authorities for CSG activities open for public inspection at its head office or office located nearest to the land to which the application relates.²⁷⁸ It must permit people to take extracts from the application and must keep a copy of or a link to, the application available on its website.²⁷⁹ A notice must also be published about the activity in a newspaper circulating generally in the area where the CSG activity is going to be carried out.²⁸⁰ The notice must describe the activity and land on which it is to be operated. It must also state where the application documents can be inspected and where copies may be obtained.²⁸¹ Submissions can be made to DEHP anytime within twenty business days of the notice being published.²⁸²

Although there is no requirement to publish information about proposed CSG projects online:

- the former DERM established a website that lists proposed projects and their location,²⁸³ and
- CSG companies and other government departments have also taken steps to publish some of their water monitoring data online, although some people have experienced difficulties in accessing their websites.²⁸⁴

Also, in November 2011, the former Department of Environment and Resource Management (**DERM**) proposed a number of revisions to the 2010 CSG Water Management Policy and released a Policy Regulatory Framework Discussion Paper calling for public submissions on the proposed changes.²⁸⁵

If someone is not satisfied with a decision made by DEHP they may apply for review of the decision.²⁸⁶ An application for review of a decision must be made within ten business days of the date on which notice of the decision was received.²⁸⁷ The first avenue of review is an internal review which is conducted by an independent person within DEHP.²⁸⁸ If a person is dissatisfied with the outcome of the internal review, they may then apply to the Land Court.²⁸⁹ However, applications to the Land Court rarely occur in practice as many people fear the uncertain legal process and the potential for an adverse costs order.

These participatory mechanisms exist so that governments and project proponents can obtain feedback and constructive comments from the public on a draft strategy or proposal. The advantage of these mechanisms is that a large number of citizens can obtain information about the proposal and have a chance to voice their opinions.²⁹⁰ However, the disadvantages of these mechanisms are that they:²⁹¹

- are a poor educational tool for complex topics;
- can misinform the public about environmental issues;²⁹²
- are a grossly inadequate as a tool for persuading industry or government;²⁹³
- can be dominated by those with a professional stake in the outcome;²⁹⁴
- can result in the government or project proponent defending its plan instead of taking citizen comments into account and formulating a plan based on citizen concerns;²⁹⁵
- mean that members of the public that are not directly affected by the decision might not be given a chance to respond;²⁹⁶ and
- result in communities that invest their time and efforts in the mechanism never knowing how their input was used in the final decision because there are insufficient opportunities for feedback.²⁹⁷

These mechanisms also emphasise the fact that “while the Queensland government may have a legal obligation to consult with the community, there is no legal obligation to agree with the results of the consultation.”²⁹⁸ Some commentators classify public consultation mechanisms which “offer no assurance that citizen concerns and ideas will be taken into account” as tokenistic.²⁹⁹

Participatory processes

Consultative committees

The Queensland Government has established a number of committees and working groups that have input into the development of government policies and progress and resolve CSG related issues. Some commentators are critical of such committees and argue that the *Surat Basin Engagement Committee*, in particular, is heavily weighted in favour of economic interests and so is not balanced.³⁰⁰ The Surat Basin Engagement Committee was established in 2011 to ensure that the community, industry and government can progress and resolve CSG related issues.³⁰¹ The Committee consists of two regional sub-groups based in Roma and Dalby made up of representatives from landholder groups, mining companies and local and state governments.³⁰²

Using the ‘environmental and planning model’ to deal with circumstances where parties interests overlap, Christie argues that community interests are poorly represented on the *Surat Basin Engagement Committee* and indigenous, conservation and public health interests are completely excluded.³⁰³ Christie concludes that “for a community consultation or engagement process to effectively reflect the public interest in the multi-stakeholder ‘CSG-agriculture-environment conflict,’ all participants having an interest in the conflict must be represented. Balanced representation is equally important to ensure all participants have an equal

opportunity to ensure that their views are properly taken into account in the ultimate decision.³⁰⁴ Committees and working groups in which citizens have the ability to advise and engage with the government can either be a form of tokenism, in which the government retains the right to make decisions or judge the legitimacy of the advice provided, or a form of partnership, in which citizens negotiate and engage with the government.³⁰⁵

The mining companies themselves have established consultative committees to include and inform local communities. They provide a forum for communication. But these too generally exclude key environmental and Indigenous representation. For example, the Joint Maranoa Regional Community Consultative Committee has representatives from local government, the Queensland Government, Chamber of Commerce, a service group, peak body for local industry, a welfare provider, members of the general community, including landholders and two representatives of CSG companies. This consultative committee is chaired, resourced and supported by the member CSG companies.

Parliamentary committees

Many citizens also had the opportunity to be involved in the Senate Standing Committee's Inquiry into the Management of the Murray-Darling Basin (**MDB**). The *Senate Standing Committee on Rural and Regional Affairs and Transport* was referred the matter of the management of the MDB and the development and implementation of the Basin Plan in 2010.³⁰⁶ As part of this inquiry, the Committee examined the impacts of CSG mining on the MDB. The committee received hundreds of submissions and held hearings in Roma, Dalby, Brisbane, Narrabri and Canberra. An interim report containing a number of recommendations was delivered in November 2011 and the Final Report was completed on 13 March 2013.³⁰⁷

As a participation mechanism, Senate inquiries offer the public an opportunity to make submissions and are reasonably accessible compared to parliament itself. This can provide individuals and organisations with an opportunity to engage in democratic processes. However, the use of public hearings in the Senate inquiry process can also be formal and intimidating to citizens who are not accustomed to public speaking and may fail to balance the unequal relationships between experts and the public.³⁰⁸ Arnstein argues that while inviting citizens to express their opinions through a public hearing is an essential step toward their full participation, it must be combined with other models of participation.³⁰⁹

Queensland parliamentary committees also seek to engage with the public on issues to educate parliamentarians and the parliament. Committees generally take submissions and evidence from the public and interest groups on specific issues or as part of their role to monitor the Executive and then report to parliament. The Queensland parliamentary committee system is relatively small, with only a few standing committees. Without an upper house, there is little opportunity for broader ranging committees to review an issue more deeply. While the *State Development, Infrastructure and Industry Committee* was established in May 2012 to examine proposed legislation and public works and oversee the departments of State Development, Infrastructure and Planning; Energy and Water Supply, it does not appear to have conducted any comprehensive assessment of the CSG industry.

Negotiation and litigation

Negotiation and litigation provide mechanisms for public involvement in circumstances where citizens are directly affected by the decision that is being made. In the context of the CSG industry, the issue of land access has demonstrated the variability in the level of power available to various participants in negotiation and litigation. The fact that CSG companies have the right to enter land to conduct certain activities has come as a "profound shock"³¹⁰ to many landholders.

The process for negotiating a conduct and compensation agreement (**CCA**) begins when the CSG company gives the landholder a negotiation notice.³¹¹ The landholder and the CSG company then have 20 business days in which to negotiate a CCA.³¹² If an agreement is not

reached during this period, either party may ask an officer from DNRM to call a conference to negotiate the agreement.³¹³ If the conference does not resolve the matter, an application can be made to the Land Court to determine the liability of the CSG company.³¹⁴

During the recent Senate Inquiry into the Management of the MDB, “many witnesses were concerned at the imbalance of power between the two parties to the negotiations on conduct and compensation – the individual landholder and the multi-national gas company.”³¹⁵ This power imbalance has led many landholders to engage in a campaign of ‘locking the gate’ to CSG mining or to simply accept what is offered by the CSG company because they lack the resources, knowledge or confidence to negotiate.³¹⁶ These power imbalances are often perpetuated if negotiations fail and the parties end up in the Land Court.³¹⁷

Yet recourse to litigation is a piecemeal and unpredictable solution to conflicts of this kind because it confines issues narrowly and the result is usually stripped of context. It can also fail to look at problems as they affect the broader public interest.

In addition, landholders may lack the resources and knowledge to effectively argue their case or retain legal representation. The possibility of having an adverse costs order imposed is a further barrier to landholders.³¹⁸ Litigation can also delay appropriate development and add to costs of the development.

3.6. Current planning processes

CSG and other resource activities are not generally governed by the planning provisions in the *Sustainable Planning Act 2009* (Qld) (**SPA**) and therefore are not included as part of the broader planning process for Queensland. Mining activities are currently regulated instead by the *Mineral Resources Act 1989* and the *Environmental Protection Act 1994*. However, the SPA provides for the designation of regions and for the making of regional plans for designated regions. A new Queensland regional planning process integrates resource development approval into land use planning, however this is confined to competing state interests relating to the agricultural and resource sectors. This process has commenced for the first two completed regional plans for the Darling Downs and Central Queensland.

The inclusion of mining within the regional planning process was a response to demands by the agricultural sector for protection of strategic cropping lands, which were seen to be threatened by intensive CSG and coal activity in the Surat and Bowen Basins.

The new plans map ‘priority agricultural areas’, which will have priority over resource activities unless both activities can coexist. Local plans will also be able to create a buffer (‘priority living areas’) around towns for ‘growth potential’. Under the plan, resource proposals will be assessed by a local authority in accordance with community expectations articulated in the local planning scheme. It is unclear how the planning processes will interact with the *Strategic Cropping Lands Act*, as amendments will likely be required to that Act to ensure a single approvals process for resource projects.

State Planning Policy

Queensland released the State Planning Policy on 2 December 2013 (**SPP**), which contains guiding principles and assessment criteria for development to protect identified state interests.³¹⁹ With respect to resource development, the SPP applies to the making of local government planning schemes, regional plans and the assessment of development applications with respect to certain state interests. The SPP outlines 18 State interests which are grouped under five themes; housing and liveable communities, economic growth, environment and heritage, hazards and safety and transport and infrastructure. These state interests will be integrated into local government plans over time; however in the interim the SPP specifies the state interests that must be addressed in development assessment.

The SPP recognises that there will be conflicts between state interests at the regional and local level, and attempts to guide local governments in identifying and implementing state interests and applicants in formulating their development proposals.³²⁰ In this situation, the SPP sets out five principles to guide the consideration and integration of state interests, being:

- Outcome focused: focusing on the delivery of outcomes;
- Integrated: reinforcing the role of local planning schemes as the integrated comprehensive statement of land use policy and development intentions for a local area;
- Efficient: support the efficient determination of appropriate development;
- Positive: enable positive responses to change, challenges and opportunities; and
- Accountable: promote confidence in the planning system through plans and decisions which are transparent and accountable.

Although CSG assessment is not included in the planning processes under the SPA, the SPP applies to the making of regional plans, which as described above, integrates resource development approval into land use planning under a new approach by the Queensland Government. Together with the introduction of the State Assessment and Referral Agency (**SARA**), the SPP is intended to lead to greater certainty, fewer unnecessary delays and better planning outcomes.³²¹ The overall affect however, is that these changes do not appear to reduce the complexity of resource development, or address social and environmental concerns which have been the focus of considerable public debate in CSG development and regulation.

Darling Downs Regional Plan

The Darling Downs Regional Plan is a statutory regional plan developed by the Queensland Government to resolve competing state interests, specifically agricultural and resources interests, on a regional scale by delivering a policy which is aimed at achieving specific regional outcomes. The Plan has two regional policy aims:

- to protect areas identified as being for Priority Agricultural Land Uses (**PALU**) whilst enabling compatible resource activities to co-exist to maximise opportunities for economic growth; and
- to provide opportunities for identified towns to expand through established town buffers to ensure the continued growth of towns.

The Plan also describes the region's priority infrastructure outcomes and discusses the state's interests in other planning and development matters.

The Plan was developed by a *Regional Planning Committee* comprised of a range of stakeholders and organisations including:

- three State ministers;
- four local members of parliament;
- six local government councillors;
- representatives from non-government organisations and corporations such as Regional Development Australia, Urban Development Institute of Australia, Centacare, a local primary school, Queensland Resources Council, the Office of External Relations, University of Southern Queensland, Queensland Murray Darling Committee, Queensland Farmers Federation, Australian Petroleum Production and Exploration Association, Agforce Queensland, Toowoomba Surat Basin Enterprise, Association of Mining Exploration Companies and the Wolff Group.



4. Ideas for change - managing knowledge uncertainty and cumulative impacts (environmental, social and economic)

4.1. Introduction

Knowledge of our world and our impact on it is formed by observation, experience, experimentation and analysis. Scientific research requires sustained and measured observation, experimentation and testing hypotheses.

In land use, a number of sources of knowledge come into play:

- Legislation often requires development proposals, including mining, to include an environmental assessment (**EIA**) and prepare an environmental impact statement (**EIS**). This is a formal process that must examine all relevant environmental impacts and report to government. By its nature, the EIS must focus on project-specific issues not the broader context and may include cumulative impact assessment.
- Project proponents can also provide information outside the EIS process. For example, in 2011 Santos placed a large amount of information about its CSG interests online.³²²
- Governments regularly commission scientific research for both internal and public purposes either through government departments (internal experts or consultants) or through standing or ad hoc bodies such as the Productivity Commission and the Murray-Darling Basin Authority.
- Conservation organisations, farmers, other non-government stakeholders and think-tanks also obtain expert advice on a range of issues, often from university based scientists and consultants.
- Information can also be gathered as part of court and litigation processes, using strict procedures developed over many years to ensure fairness, relevance, timeliness and cost-effectiveness.
- Local and community knowledge, particularly regarding the baseline of land, community and environmental characteristics.

This information can become a clouded mix of which few or none have an overall understanding and views of particular issues can be hotly contested. The variety and volume of data is the result of “different groups proceeding independently and undertaking their own risk assessments and predictive modelling, using their own assumptions and databases.”³²³

Nonetheless, science is the best tool we have for providing proof of what may already be known and produce evidence of likely impacts, ensuring that we can sustain a resource and are less likely to make mistakes that will be inherited by later generations, locally and more broadly. The best available information will facilitate the best decisions for now and in the long-term and good science can be trusted to present all available information. Of course, there are also limits to our understanding and science cannot answer all questions with our current knowledge base and technology.

This chapter looks at some of the concerns raised earlier in discussion of the CSG industry to identify if there are other ways to process a vast array of information and improve our understanding of complex issues of this kind.

4.2 Ideas for improving project-specific assessment such as the EIS

There has been much criticism of the EIS process, including accusations it lacks impartiality, is too costly, and has become too complex. Coupled with this, as described at 3.2, the recent Greentape Reduction reforms have implemented changes to the EIS process which affect the ability of the EIS to address all impacts of a proposed project due to streamlining of the process and narrowing of the criteria of potential impacts to be assessed.

One suggestion to improve the EIS process to ensure the process is open and inclusive is to set up a government agency to undertake the reporting function for EIS or to coordinate assessment. However, this suggestion has been criticised because perceptions of bias and partiality will always be a part of the process, regardless of who conducts the assessment.³²⁴ Allowing the project proponent to undertake the environmental assessment offers the benefit of environmental impacts being properly addressed by altering design as a result of impact identification and identifying mitigation measures and developing environmental management plans.³²⁵ However, even if assessment was undertaken independently, formulation of mitigation measures and management plans could still be undertaken by the proponent.

The EIS process has also been criticised for being too costly.³²⁶ One idea is that the cost of an independent agency undertaking the EIS could be covered by the project proponent through greater upfront application fees or the pooling of fees. However, one commentator has noted that:

An assessment produced by officers at any level of government with the collaboration of the proponent, should not be regarded as impartial scientific evaluation by the people whose interests are affected. For example, in the case of a development with an apparently adverse affect on the local population, the very fact that the assessment is prepared by the local planning department will effectively destroy the department's credibility.³²⁷

As such, there are few examples of a government department or agency undertaking the EIS for a project or development.

Another approach is for the assessment report or study to be peer reviewed and the inclusion of a number of other safeguards to ensure that the assessment conducted by the proponent is sound. The following are some examples:

- The information contained in the assessment report can be reviewed by an independent panel or third party. The **Canadian** system is an example of this approach. It involves the establishment of a panel which reviews and assesses a project impartially and objectively.³²⁸ The panels are appointed by the Minister for the Environment when the environmental impacts of a project are uncertain or when an appointment is warranted by public concern.³²⁹ The panels encourage open discussion and exchange of views and have the potential to inform and involve large groups of interested parties.³³⁰ The Minister for the Environment may also appoint a mediator to assess a project and help interested parties resolve conflicts. The **Nigerian** system is modelled on the Canadian approach and also involves a number of possible review methods including a panel review and mediation.³³¹
- The NSW government has recently published a **Strategic Land Use Policy** which introduces a new assessment process for major resource projects.³³² The new process is similar to the Canadian system in that it provides for 'gateway assessment' of a proposal before a development application is lodged.³³³ The assessment process involves the establishment of a scientific panel of independent experts who assess the potential impacts of the CSG mining proposal against specific criteria and decides whether the proponent should be allowed to lodge a development application and proceed to the full merit assessment process.³³⁴ The NSW government has stated that "the decisions of the panel will be binding and made at arms length from government."³³⁵ However, the 'gateway assessment' process has been criticised by both miners and farmers for duplicating processes that are already in place, allowing the government to over ride decisions made by the scientific panel for 'projects of state significance,' and failing to categorically identify high value agricultural land as off limits to CSG mining.³³⁶ The NSW Minerals Council has stated that it is "extremely concerning that this new state-based panel would decide whether a mining proposal can be developed without having actually seen a full mining proposal."³³⁷

- Legal conditions may be placed on the relationship between proponents and consultants or consultants can be required to undergo certification or registration. In a number of **South American** countries, the EIS is prepared by private independent consultants in an attempt to ensure that the project is evaluated impartially.³³⁸ In a number of other countries there are requirements for consultants to be registered.³³⁹ These models have been criticised because there is no efficient mechanism for evaluating the technical qualifications of the consultants and because “there will always be an economic dependence between consultants and proponents, rigorous EIS review procedures are more effective than the mandatory requirements for independent consultants.”³⁴⁰ In Malaysia there has been devolution of the EIA process from the federal government to independent impact assessment.³⁴¹
- In some countries where there is insufficient expertise or resources to review EIS, there can be a pooling of resources to try to build capacity as a region.³⁴² An example of this is the **Southern African Institute for Environmental Assessment** which assists countries to implement EIS more effectively. It is set up as an environmental trust and provides services to governments and a range of other clients to guide and review environmental assessment, human capacity building and research and development.³⁴³ The benefit of the institute is that it is an independent organisation that is not influenced by government, developers, pressure groups or anyone else wanting to support a specific agenda.³⁴⁴ It also offers the advantage of being cost effective because only the experts that are needed for the job are hired and it utilises local expertise.³⁴⁵

Another criticism of the EIS process is that it occurs too late for proper consideration of impacts or that there is no additional preliminary or strategic assessment guiding the assessment of the project prior to the EIS stage. Australia is already implementing a number of ideas for ensuring that assessments happen earlier in the process. For example, under the *Environment Protection and Biodiversity Conservation Act 2009 (the EPBC Act)*, the Australian Minister for the Environment, Heritage and the Arts can approve of actions known as strategic assessments, which happen early on in the planning process and examine the potential impacts of actions which might stem from one or more policy, program or plan.³⁴⁶ Examples of strategic assessments include local government plans, district structure plans and strategic land use plans.³⁴⁷ Strategic assessments under the EPBC Act mainly involve individuals or agencies such as local councils, state ministers or government departments responsible for implementing the policy, plan or program.³⁴⁸ Unfortunately, strategic assessments are generally only triggered for developments involving matters of national environmental significance and do not occur for every type of development or project. In practice, strategic assessments have also approved a class of activities that later do not require individual assessment under the EPBC Act.

Questions for discussion

Q4.1: Is the EIS process an effective tool for understanding the impact and measuring the risks of a development proposal?

Q4.2: Is the EIS process an effective mechanism for incorporating community views and knowledge?

Q4.3: Could the EIS process be improved to include more public involvement in the initial stages of a development, without significantly affecting the project's commerciality?

Q4.4: Could an EIS be conducted before a final investment decision is made by the proponent? Why or why not?

Q4.5: Who should be responsible for undertaking an EIS, and could the EIS be conducted more efficiently and effectively by an independent body or agency rather than the proponent?

Q4.6: Could a model involving early consultation and capacity building in the 'review and assessment' stage of an EIS work in Australia?

Q4.7: Do you have any other comments about improving the effectiveness of the EIS process?

4.3 Ideas for re-thinking strategic assessment - adaptive management and the precautionary principle

The steps that are followed in adaptive management suggest that it may only be suitable to use as a management process in certain circumstances. Adaptive management has been most successful when used to manage a natural resource over a small scale and short period of time and when management goals have been clearly defined from the beginning.³⁴⁹ If there is too much uncertainty about how the resource will respond, adaptive management may have a negative effect.³⁵⁰ For example, it may:

- conceal what is really reactive management;
- justify unlimited discretion by the managing body; or
- permit high level decision-makers to postpone difficult decisions.³⁵¹

Once government has decided that adaptive management is an appropriate management option, the challenge is then to ensure that management targets are adequately defined, that the adaptive management regime allows for proper monitoring of the resource and that the regime can be strengthened over time. For this to occur, adaptive management should be reflected and supported within the overall regulatory and legislative environmental management framework.³⁵²

These concerns aside, the advantage of using an adaptive management framework is that it allows resource management to occur in the face of uncertainty.³⁵³ If properly implemented, adaptive management can provide a structured, transparent and scientific method of resource management.

However, adaptive management works best if used in conjunction with other tools such as the precautionary principle and a transparent stakeholder engagement process (see the next part of this paper), which are not currently clearly incorporated.

Australian fisheries example

An example of the application of the precautionary principle by adopting a management approach that involves monitoring the impacts of management or decisions based on agreed indicators and continually evaluating the outcomes and results is the Australian fisheries that are governed under the *Fisheries Management Act 1991* (Cth) (FMA). These fisheries are required to be managed in a manner that is consistent with the principles of ESD and the precautionary principle.³⁵⁴ The Australian Fisheries Management Authority (AFMA) is responsible for implementing the FMA and manages fisheries using an adaptive management framework.³⁵⁵ The precautionary principle is specifically mentioned which suggests that greater emphasis is given to it than the other principles of ESD. A number of management policies and guidelines which explicitly state the level of acceptable risk to fisheries have been produced and are publicly available.

The regulatory framework included in the FMA,³⁵⁶ the Commonwealth Fisheries Harvest Strategy Policies and Guidelines³⁵⁷ and fisheries management plans³⁵⁸ all clearly define the management objectives that are used. Management plans and harvest strategies are created by Management Advisory Committees comprised of representatives from industry, the management and research sectors, environmental and conservation organisations and state government. A management plan and harvest strategy is created for each fishery using information gathered by Resource Assessment Groups (**RAGs**). Information gathered by the RAGs and the FMA's research program is used to create and reassess management plans. The management plans and harvest policies are also periodically reassessed to ensure that management objectives are being met using management strategy evaluation.³⁵⁹

The precautionary principle has been integrated into the adaptive management framework. For example harvest strategies are supposed to be amended every three to five years unless new information is obtained that “substantially changes the understanding of the status of a fishery.” Harvest strategies are designed to avoid overfishing of a stock with at least 80% probability. Fishery target and limit reference points, along with their associated probability of being met are set. Where the information needed to quantify risk of overfishing is unavailable or is of poor quality, a precautionary approach is taken in that exploitation levels of a fishery are reduced as uncertainty around the stock status increases.³⁶⁰ The harvest strategies therefore explicitly reflect the level of risk of harm to a fishery that the government considers acceptable. Calculations of risk and uncertainty, along with the official adoption of a precautionary approach ensure that the precautionary principle is effectively applied in fisheries management.

The adaptive management framework adopted by the AFMA has been considered effective by some in that it allows for progressive management because the specific procedural steps involved are evident at many levels and policy information has been published that explains the adaptive management framework, how the precautionary principle is applied and what level of risk to the environment has been allowed. However, others have argued that the process has not been effective at ensuring sustainable outcomes. Nonetheless, it does appear that the decision making processes of the AFMA are transparent and capable of being scrutinised to ensure that management procedures remain adaptive and as such, the permitted level of risk to the environment is more likely to reflect that of society.

Adaptive management is a method that focuses on the practicalities of managing resources. As such it is a suitable method of dealing with uncertainties in steps two and three of the decision making process. It is not particularly useful for deciding whether or not a project should go ahead in the first place, and the simple fact that a resource can be managed adaptively should not be used as an excuse to let it go ahead without proper consideration of other relevant factors.

Questions for discussion

Q4.8: Has the precautionary approach been adequately considered by government when granting approvals for CSG mining?

Q4.9: Is it realistic to adopt a precautionary approach if the over-arching government policy is to promote economic development and growth?

Q4.10: Is the use of an adaptive management regime appropriate for all resource development proposals?

Q4.11: Is the Australian fisheries model a good example of how the precautionary principle can be applied to other developments/industries within an adaptive management framework?

Q4.12: Would prescribing clear stakeholder engagement principles and processes in conjunction with adaptive management be a better model for assessing resource developments?

4.4 Ideas for re-thinking strategic assessment - joint fact finding

In 3.1 above, concerns about our knowledge of CSG were discussed and questions were raised about the ability of the current framework to respond to those concerns. In 4.2, some ideas to improve the existing framework, particularly the EIS process and adaptive management, were canvassed. In this part, another tool for incorporating knowledge into the decision-making process is discussed. This tool is called *joint fact finding*, a mechanism to provide reliable, high quality and cost effective data that is acceptable to all stakeholders in resource and land use planning and dispute resolution.

To help ensure that good science is considered in decisions, a forum or procedure is needed that brings experts, decision makers and the general public together in meaningful deliberations and negotiations that incorporate scientific information, local knowledge and all the relevant values and interests.³⁶¹

Joint fact finding is a means of resolving factual disputes through the formation of a single fact finding team comprised of experts, decision makers and interested parties.³⁶² Joint fact finding is a component of many consensus building processes and extends the interest-based, cooperative efforts of parties into the realm of information gathering and scientific analysis.

Consensus (in joint fact finding) does not require that the group reaches unanimity, but rather that an overwhelming majority, defined by ground rules established by the group, supports whatever final agreement is reached.³⁶³

As joint fact finding promotes shared learning, “it helps to create knowledge that is technically credible, publicly legitimate and especially relevant to policy and management decisions.”³⁶⁴ In joint fact finding, stakeholders with differing viewpoints and interests work together to develop data and information, analyse facts and forecasts, develop common assumptions and informed opinion and, finally, use this information to reach mutual decisions.³⁶⁵

Joint fact finding may be suited to disputes such as CSG because it offers a process by which the interested parties pool relevant information, resulting in a fair, objective and balanced inquiry of the facts.³⁶⁶ The other advantages of using a joint fact finding approach include:

- The joint fact finding process usually places considerable emphasis on translating technical information into a form that is accessible to all participants in the dialogue. It also allows participants to map areas of scientific agreement and to narrow areas of disagreement. For CSG disputes which involve a great deal of technical data and uncertainty, this is very important.
- The involvement of all interested parties allows non-experts to offer fresh insights, which in turn encourages experts to evaluate their findings in a new light and this creative environment can encourage new solutions to problems. The promise of joint fact finding is that “when people have a say in the design, analysis and application of scientific inquiry, they are more likely to value and use it.”³⁶⁷

Experts in joint fact finding have cautioned that the method may not be appropriate for every conflict scenario and that the circumstances of each individual case must be considered when determining the suitability of joint fact finding as a consensus building mechanism.³⁶⁸ It has noted that joint fact finding may be an inappropriate model for dealing with conflict when there are significant power imbalances, extreme differences in stakeholders’ technical backgrounds and difficulties in determining how much information is enough. These could be potential obstacles to implementing a joint fact finding model in disputes such as CSG development as the level of power available to participants varies considerably and there are a number of interested parties who have little technical expertise. As such, it may be more suitable in resource planning.

Cooperative examples

The **California Bay-Delta Authority (CALFED) Program** is an example of a joint fact finding and shared-learning process between science, governance and ecosystems that was implemented to create a long term solution for the Sacramento-San Joaquin Delta regarding the efficiency of agricultural water use.

The model involved establishing an Independent Review Panel on Agricultural Water Conservation Potential which brought together scientists, technical advisors and interested stakeholders “to understand and manage the delta for multiple purposes”³⁶⁹. It was a large-scale

process and multi-scale institution with sub-processes and with cross-scale governance. The panel worked through a detailed process to calculate types of agricultural water loss before identifying quantification and research needs.³⁷⁰ The final report produced by the Panel was received well by the water stakeholder community and became a source for ongoing deliberations.

A CALFED Science Program was also established and coordinated by lead scientists with the involvement of external consultants. The program's board meetings were open to stakeholders and members of the public.³⁷¹ The board undertook research and funded proposals through a peer-review process.³⁷² Its aim was to promote understanding of the Delta. Some of the successes of the Board include:

- scientists and the agencies in which they work had a shared understanding of the problem and were aware of how different scientific perspectives focus on different things;
- there was not a sharp distinction between the knowledge of scientists and that of policy makers, stakeholders and the public;
- it worked with highly distributed governance which is manageable at the Delta scale; and
- it worked in real time as problems arose and decisions were made.³⁷³

Unfortunately, the latest evaluation of CALFED showed that there was little improvement in the health of the Sacramento-San Joaquin Delta. As such the CALFED Program has been discontinued.³⁷⁴ Reasons for its failure include that:

- it was too difficult to obtain a consensus on the major issues;
- it made little progress in understanding the state or dynamics of the environmental system because the system changed so rapidly;³⁷⁵
- endangered species were still declining and pollution was high;
- there was a tension between scientists who saw complexity and re-framed questions and policymakers who demanded answers to specific questions;³⁷⁶
- some stakeholders felt excluded and opening board meetings to the public meant that scientists were more cautious in exploring ideas because of the potential of misuse by the public or media;³⁷⁷ and
- establishing a framework for adaptive management was complicated because of multiple ecosystem perspectives.³⁷⁸

\$3 billion was spent on CALFED between 1994 and 2006, of which \$1 billion was spent on environmental restoration. CALFED is considered “a ‘leading-edge experiment’ in collaborative planning,³⁷⁹ a new model of environmental regulation³⁸⁰ and an exemplar of adaptive management³⁸¹”. CALFED was described in 2009 as one of the most ambitious experiments in collaborative policy and adaptive management in the world and one of the most observed. As such, while ultimately unsuccessful in delivering necessary outcomes for the Delta, it offers vital lessons for other attempts at collaborative and participatory governance including:

- stakeholders developed an appreciation of the complexity and dynamics of the Delta after several interactions failed to produce a single solution;³⁸²
- the focus of science reflects prevailing values and concerns and as such, the environment can never be perceived as independent of how people understand and affect it through governance;³⁸³ and
- new models of science and policy should be developed which explore the interaction between scientists, stakeholders, the public and policy makers.³⁸⁴

The issues raised by this example will be revisited in chapters 5, 6 and 7 of this paper.

The **Reef and Rainforest Research Centre (RRRC)** is a not-for-profit consortium of research providers, industry and community organisations that manages and delivers a comprehensive tropical environmental research portfolio.³⁸⁵ The research conducted by RRRC is used by more than 38 government agencies, industry groups, community groups and indigenous bodies.³⁸⁶

What sets the RRRC apart from other research organisations is its approach to engagement and its role as a knowledge broker. In this way, the RRRC adopts a joint fact finding approach. For example, the RRRC engages with researchers and end users of the information produced to define research questions and projects.³⁸⁷ The RRRC also ensures that information is delivered effectively to its end users:

The aim is for end users to be aware of new research, to understand the implications and then apply the knowledge towards increasingly sustainable outcomes. This results in the maximum possible return on investment in public good research and the best possible benefit for the North Queensland region.³⁸⁸

Another example is the **Healthy Rivers Commission (HRC)**, which was established as part of the water reform program implemented by the New South Wales Government between 1995 and 2004. The purpose of the HRC was to conduct independent public inquiries into selected rivers and make recommendations to the government on long term strategies to achieve environmental, social and economic objectives for the river systems investigated. The HRC used a number of joint fact finding approaches when conducting inquiries into the rivers it investigated.

The HRC's inquiry process was transparent so that stakeholder views could be included in the development of strategies and there was an understanding of their known or likely views on recommended strategies. A key component of each inquiry process was the collation of relevant scientific information to inform the development of strategies to improve river management. Typically, this would include some form of expert panel process where the HRC facilitated the development of agreed scientific findings. The processes established were innovative and required the scientists to work differently having regard to the broader inquiry objectives. As Commissioner Peter Crawford summarised:

We have had difficulty in finding experts who have been able, as independent experts, to help develop an overall model of the river system, its critical processes and relationships. Just as agency personnel tend to focus on what they know best, so too have the experts been more comfortable in the scientific and technical terrain they know best. We have worked with those experts to develop systemic views and to encourage them to bridge the gaps between disciplines so that, together, we can develop an overall management framework.³⁸⁹

There have been two criticisms of the HRC process: that the review process took too long and that its recommendations were difficult to implement. However, the main delays were in the time Cabinet took to decide from the time of delivery of the report and HRC processes depended on the size and complexity of the particular catchment being examined, as there was no one size fits all approach. HRC processes were also faster towards the end because the HRC started with the hardest catchments and moved to the simpler ones.

With respect to implementation, the HRC focussed on ensuring recommendations were capable of implementation, and it was a major objective of the Commissioner to ensure proposals were realistic and achievable. Part of the process included several consultations with relevant agencies and other parties, and recommendations were modified to incorporate any feedback on implementation and to ensure the strategies were accessible and capable of implementation.

Another example is the **NSW Natural Resources Commission (NRC)**, which was established under the Natural Resources Commission Act 2003 to provide independent, credible advice to the NSW government on managing natural resources in a way that supports environmental, economic and social values.³⁹⁰ The main role of the NRC is to advise the government on complex scientific, strategic and technical issues related to natural resource management. Specifically, the NRC "conducts independent reviews and provides credible, timely advice that is based on scientific evidence and takes account of the broad range of stakeholder views."³⁹¹

For example, in the 2009-2010 financial year the NRC provided advice in relation to river red gum forests in the Riverina and the development of native vegetation management plans.³⁹² The NRC also plays a role in reviewing catchment actions plans, conducting audits and reporting to government with recommendations for approval.³⁹³ Although the NRC is an independent office, it is required to report to the NSW Premier.³⁹⁴ In order to best understand the issues it deals with, the NRC:

uses transparent consultation and collaboration approaches, and accesses the best available knowledge across a variety of fields, including leading academics, scientists and the broader scientific community.³⁹⁵

Questions for discussion

Q4.13: Are the existing mechanisms for incorporating scientific and other knowledge into decision-making adequate in Queensland?

Q4.14: Do the existing public consultation mechanisms allow sufficient opportunities for people to understand the nature and extent of development proposals and their impacts on communities?

Q4.15: Is a joint fact finding model for development proposals in Queensland a workable model for resource developments like CSG?

Q4.16: What features should a governance mechanism have to ensure that science and information is delivered effectively to the public and decision-makers?

Q4.17: Should an independent commission or similar body with the power to collect and disseminate information be established in Queensland to gather and produce independent and credible scientific information and advice in relation to resource developments like CSG? Who would pay for such a body? Could existing agencies such as the CSIRO effectively fill this role?

Crowd science

Crowd science involves members of the public in research projects in a way that allows “curious amateurs”³⁹⁶ to contribute to creative solutions. Some examples of crowd science include:

- applications for iphones which allow people to take photographs of species and share this with researchers. In the United Kingdom, such applications have led to the discovery of several new species;³⁹⁷ and
- a game called FoldIt, which requires its players to fold an image of a protein molecule. Several players of the game discovered the folding for an important protein in AIDS research.³⁹⁸

In his paper on crowd science, Cook states that there has been a “boom in technology that allows large numbers of people to do amazing, cooperative things with information,”³⁹⁹ but cautions that the divisions between the “highly educated mandarins of the academy and the curious amateurs out in the world,”⁴⁰⁰ are difficult to break down.

Potentially, crowd science could be used to incorporate the local knowledge of landowners and other members of the public into a database that collates information about the cumulative environmental, social and economic impacts of resource and other development. The new Queensland Government platform on Google Earth *Queensland Globe* could possibly host a crowd science layer.

Questions for discussion

Q4.18: Could crowd science be used to ensure that landowners and other members of the public can incorporate their local knowledge into the decision-making process for CSG projects? If so, how and what technology could be used to facilitate it?

4.5 Improved consideration of cumulative social and environmental impacts

In chapter 2.2 of this paper, the mechanisms to ascertain impacts of land and resource development were outlined. In chapter 3.2 and 3.3 of the paper, the adequacy of those mechanisms were described and assessed, including a description of the recent Greentape Reduction reforms, which narrowed cumulative impact analysis and social impact assessment under the EIS process.

Of all the systems aimed at regulating development in Queensland, the least transparent are the long-term and cumulative impacts on people and the environment.

Assessing and managing cumulative impacts is, by its nature, complicated. Predicting the environmental impact of a single development over an extended period of time or the combined impact of two developments on the economy of a town is difficult. When the number of developments or activities increases ten or a hundred fold, assessment of the impacts will of course be more complex and difficult to measure.

A number of models have been developed to quantify cumulative impacts but few have included meaningful participation by the people who are experiencing the effects of these changes, that is, individuals and communities. There is also concern about the inability of such models to allocate responsibility for impacts.

Although it is recognised that ‘a collective approach to the management of cumulative impacts, ideally involving not just miners but government, community and other industries as well, has the potential to produce better sustainable development outcomes,’⁴⁰¹ there has not yet been adequate community participation in assessing change on this level.

Improving the existing framework

The Sustainable Minerals Institute,⁴⁰² University of Queensland, has produced *Cumulative Impacts: A Good Practice Guide for the Australian Mining Industry* ‘to enhance the capacity of the Australian coal mining industry to identify, assess, manage and monitor cumulative community, economic and environmental impacts.’⁴⁰³ The guide is aimed at assisting industry and government to assess and manage cumulative impacts at the local and regional scale. As cumulative impacts are the result of all activities in the environment in which they occur, the model could be used for other industries, such as coal seam gas. Indeed, the guide suggests that ‘the document has been written to make it relevant to the mining and minerals industry more broadly.’⁴⁰⁴

After outlining good and better practices to deal with cumulative impacts, the guide outlines an eight-step approach to understanding and dealing with cumulative impacts:

- determine the key areas of concern to stakeholders;
- define the system(s) to be understood;
- determine how the impacts are accumulating;
- determine what actions are contributing to the generation of impacts and by whom;
- review the strategies available to avoid and mitigate adverse cumulative impacts and enhance positive impacts;
- consider, whether – and with whom collaboration is required to coordinate system wide management responses;

- monitor priority receptors of concern, determine system level indicators and targets, and agree on these with other stakeholders; and
- determine the best approach to report and communicate information on key cumulative impacts to stakeholders.⁴⁰⁵

While the guide itself recognises that ‘local government, regional development organisations, community organisations and the small business community are experienced partners that have a strong stake in outcomes’⁴⁰⁶ and provides examples that ‘demonstrate the benefits of a partnership approach to planning and delivery,’⁴⁰⁷ the eight-step approach for operationalising the guide is directed towards a company’s own assessment process. Nonetheless, the eight-step approach suggests that ‘[t]he determination of priority impacts may require engagement with stakeholders,’⁴⁰⁸ and that ‘[c]ollaborations may include other entities that are contributing to the impact.’⁴⁰⁹

Importantly, the guide suggests that information about the different ways “accumulative impacts aggregate and interact ... should ideally be collected and up-dated across the lifecycle of mining projects”.⁴¹⁰

The guide adds:

... there is much to gain from increased consideration of cumulative impacts. Proactive and collaborative management of cumulative impacts can benefit regional environments and communities and contribute to industry’s social license to operate.⁴¹¹

However, the guide was written before the recent changes to cumulative impact assessment through the EIS process. Cumulative assessment is now only necessary to the extent the information is available and its absence need not be fatal to the project (see Generic ToR in chapter 3.2), potentially depriving the community of valuable impact data over the life of a mine.

An earlier CSRM research paper *Leading Practice Strategies for Addressing the Social Impacts of Resource Developments* acknowledges the Queensland Government’s efforts to implement strategic and regional planning of resource development. The paper states however that a major impediment to addressing cumulative impacts is the lack of publically available information about planned and possible future developments.⁴¹² This is largely due to commercial uncertainty and sensitivity.⁴¹³ The paper suggests that Queensland would benefit from the approach adopted by Alberta, Canada’s Oil Sands Developers Group, which ‘forecasts’ planned and prospective developments to overcome the scarcity of information on future developments.⁴¹⁴ This forecasting innovation by industry has overcome issues of commercial sensitivity and confidentiality to provide anonymous and aggregated data on likely future activities. This is part of the broader approach adopted by Alberta, involving a ‘Land-use Framework’ which guides the regulatory mechanisms that administer and integrate policy and planning into impact assessments, project approvals, and long-term decisions regarding land-use.

The good practice guide ‘focuses on the opportunities and challenges involved in proactively identifying and responding to cumulative impacts at the local and regional scale and details examples of collaboration to assess, manage, monitor and report cumulative impacts.’⁴¹⁵ It recognises that ‘the central idea behind the assessment and management of cumulative impacts is that it is insufficient to only consider the impacts of a single project or area,’⁴¹⁶ and that ‘sustainable development requires that the full range of human generated stresses are understood in their environment, economic and social context.’⁴¹⁷ The guide describes the benefits of strategic and regional assessment and planning as examples of better cumulative impact practices.

Strategic and regional assessments, as opposed to site or project specific assessments are conducted at the level of a policy or program, or in a region affected by a particular industry,

such as the Surat or Bowen Basins. Strategic assessments have been promoted as a method for more effectively assessing and managing cumulative impacts because they:

- take account of broader land areas and timeframes;
- can create specific regional standards, thresholds and influence land use planning; and
- can often establish regional tools and database, as well as management systems specifically for a region.⁴¹⁸

There are some limitations to the approach taken in the guide including the following:

- some of the better advice regarding cumulative impacts, that is, strategic and regional assessment and management, are best suited to industries in their infancy where planning is predictive and not reactive;
- 'cumulative impacts, by their nature, are defined from the reference point of the entity receiving or experiencing the impact,'⁴¹⁹ so a cumulative impact assessment and management model designed for use by mining companies and regulatory bodies with limited input from the cumulative impact receptors cannot adequately address the effects of those impacts;
- cumulative impacts may be better addressed by solutions that more accurately acknowledge the nature of the EIS process in Queensland; and
- the potential for cooperation between mining companies is limited by their intense competition.

Role of the Coordinator-General

In Queensland, for 'coordinated projects,' the Coordinator-General has obligations and discretionary powers under the SDPWO Act. However, the duties of the Coordinator-General are to 'secure the proper planning, preparation, execution, coordination, control and enforcement of a program of works, planned developments, and environmental coordination for the State.'⁴²⁰ To do this, the Coordinator-General has the discretion to make orders which are necessary or desirable to achieve these ends.⁴²¹

It appears that if a particular body was in a position to adequately coordinate the identification, assessment and response to cumulative impacts, it would be the Queensland Government and particularly the Coordinator-General. The Coordinator-General has been given the responsibility and powers to plan state development, and it has access to large amounts of information on the most significant developments in Queensland through its role in and oversight of the EIS process. It would appear to be best placed to identify cumulative impacts on a community or a region. However, it has a conflicting role in that the Coordinator-General is required to promote development (see chapter 2.2, 'Assessment of coordinated development').

There is no evidence that the Coordinator-General reviews the vast amount of information it receives to understand and respond to cumulative impacts in a holistic or strategic way, or that the information is routinely used by other government departments to assess cumulative impacts.

Using community indicators to measure impacts and progress

To ensure that people have a say in how impacts are assessed, one idea might be to adapt the 'community wellbeing indicators' model to the assessment of impacts. The Victorian Community Indicators Project is an initiative funded by the Victorian Health Promotion Foundation with support from the Department of Human Services.⁴²² The aim of the project is to support local governments to develop better ways to understand and measure local community wellbeing and stronger more effective citizen involvement in those processes.⁴²³ The project has prepared a draft Victorian Community Indicators Framework drawn from data sets used by Victorian local governments as well as international frameworks.⁴²⁴ The framework identifies a series of indicators within domain areas that aim to provide a mechanism for measuring wellbeing that moves beyond gross domestic product (GDP) and other commonly used indicators of wealth.⁴²⁵

Some of the indicators include:

- the percentage of people who think they have an opportunity to have a real say on issues that are important to them;
- the percentage of people who feel encouraged to participate in decisions that affect them and their community;
- the condition of natural waterways and streams;
- water consumption per capita;
- vegetation cover tied with rates of carbon sequestration;
- participation in sporting and recreation activities;
- local employment; and
- percentage of people who raise over \$2,000 in an emergency.⁴²⁶

Measuring such indicators may create a picture that can demonstrate changes in communities over time.

The Australian National Development Index (ANDI) is a national initiative to build on this model. Involving a range of Australian and international partners including the Australian Bureau of Statistics, ACROSS, the ACTU, ACF, churches, leading welfare organisations such as the Red Cross and The Smith Family, universities and the OECD, ANDI is developing a process to identify indicators to measure social goals, community wellbeing and progress as an alternative to the use of economic indicators. QCOSS has also developed a range of Queensland indicators.

Questions for discussion

Q4.19: Is the current process for assessing and managing cumulative impacts for resource development in Queensland adequate?

Q4.20: Is it realistic to expect that development proponents can adequately assess and report on cumulative impacts beyond the area and impacts of their own development?

Q4.21: Should the Coordinator-General consider and manage the cumulative impacts of development proposals in the public interest?

Q4.22: If not the Coordinator-General, who should gather and assess cumulative impact data and report to decision-makers?

Q4.23: Should the CSG industry play a greater role in cumulative impact assessment by predicting prospective resource development for a region?

Q4.24: Is the Alberta, Canada Oil Sands process a model that Queensland should adopt?

Q 4.25: Is there a better way to undertake cumulative impact assessment in relation to new developments, and if so, how should it be funded?

Q4.26: Could a community wellbeing indicators model be adapted for use in the assessment of the impacts of CSG? If so, how?

Q4.27: What have been/are the direct impacts of CSG mining on you, your family, your business or your community?

Q4.28: What would be the best way to ensure full public consideration of impacts over the life of a project?



5. Ideas for change - collaboration and participation

5.1. Introduction

Public participation is often described in terms of the range in intensity of the engagement mechanisms that are involved. This range varies from low intensity forms of participation such as information sharing and consultation to higher intensity forms of participation such as joint decision-making and initiation and control by stakeholders. The research for this paper indicates that community involvement in Queensland decision-making has so far been in the lower range of intensity.

The general trend in participation mechanisms has been described as follows:

What is referred to as 'participation' sometimes consists of no more than the provision of information from one actor to others, with the latter referred to as 'participants' and often consists of one actor consulting others on their views without any obligation to incorporate the views expressed. (Also) the power relations between 'participants' or stakeholders and the politically transformative potential of their interaction differ considerably between one level of intensity and another.⁴²⁷

The theoretical benefits that are promised by public participation include better policy, greater social cohesion, avoiding litigation costs, citizens becoming more engaged with political issues and politicians becoming more responsive to citizen concerns.⁴²⁸ However, the idea of increased public involvement in decision-making has also been criticised for being easily captured by elites and unable to make new democratic forms more inclusive of other forms of representation.⁴²⁹ Other criticisms include cost ineffectiveness and the fact that participation is sometimes viewed as "little more than providing the usual suspects with another opportunity to advance their views and complicate what is already a difficult choice."⁴³⁰

In chapter 3.5, the involvement of citizens in the EIS process was touched upon. In this chapter, examples of higher level involvement are examined.

5.2. Cooperation and collaboration

The idea of more effective participation is often closely linked to concepts such as cooperation and collaboration. In a cooperative regime, the role of government changes from regulator and controller to facilitator, and law becomes a shared problem-solving process rather than an ordering activity.⁴³¹ Government, industry and civil society groups all share responsibility for achieving policy goals, which in turn enhances democracy by allowing groups to work together cooperatively and build social capital.

An emphasis on cooperation and collaboration has also led some commentators to promote the benefits of decentralised decision-making models which integrate policies to allow those closest to the problem to contemplate their effectiveness and reasonableness.⁴³²

The participatory and deliberative aspirations that characterise much of the debate about developing more effective mechanisms for public participation are often intertwined with ideas about enhancing democracy. Gaventa argues that although democratic "institutional forms and procedures may be in place, the challenge is how to deepen their inclusiveness and substance, especially in terms of how citizens engage with democratic spaces to create more just and equitable societies."⁴³³ He argues that to deepen the inclusiveness and substance of democratic institutions, we must strengthen citizen engagement by:

- building civil society to serve as an additional check and balance and hold government to account;

- ensuring that citizens can participate with the state in the decisions which affect their lives through co-governance, which involves “inviting social actors to participate in the core activities of the state”⁴³⁴, and
- ensuring that the nature and quality of the deliberation which does occur when citizens come together for discussion and debate is effective.⁴³⁵

McGee et al argue that the following enabling structures are required for any participation mechanism:

- the provision of adequate information;
- citizens must possess the necessary skills to take up opportunities for participation and the government must possess the necessary skills to reach out to citizens; and
- the participation mechanism must be well resourced and must take into account the cost benefit calculations which citizens undergo in deciding whether to engage.⁴³⁶

Governments frequently talk about better collaboration, recognising its importance and potential to achieve better coordination and outcomes and therefore improved efficiency and effectiveness, but do not usually do it well:

.. throughout the world, trust in government and the agencies that serve them is declining [and] government inefficiency and ineffectiveness rank highly as two key reasons for this mistrust.⁴³⁷

The UnitingCare report recognised this problem:

The Church and service groups are presented with new challenges around the decline and fracturing of social networks. For example, there appears a fracture in connections between government and community. Respondents are concerned by what they feel are exclusive relationships between government and mining companies.⁴³⁸

There have been numerous attempts by government to develop “joined up” and “seamless” responses to increasingly complex problems, but they usually focus on inter-departmental collaboration, rather than attempts to collaborate with other sectors in finding holistic and coordinated responses.

The *Engaged Government Project* was funded by the Australian Research Council, the Queensland Government and Local Government Association of Queensland to examine how government agencies collaborate in order to enable governments to better engage with citizens and to address increasingly complex problems.

Five case studies were conducted in Central Queensland relating to planning and construction of transport infrastructure, regional planning and a natural resource management grant scheme for farmers. The Queensland Government Regional Managers’ Coordination Network instigated the project. The study found that “inter-agency collaboration may be a ‘blind spot’ in terms of government-citizen engagement, and that successful engagement between government and citizens may be at least partly dependent on the ability of agencies and spheres of government to engage successfully with each other when attempting to address shared issues.”⁴³⁹

The research suggests that “successful engaged government depends on several factors. These include:

- the development and maintenance of social processes that incorporate how participants work together;
- their response to unchosen change;
- how and where decisions are made and informed by the best available knowledge and changes that occur as a result of this process, especially in terms of changing power dynamics;

- the way resources are distributed within collaborative relationships over various spatial and temporal scales.”⁴⁴⁰

5.3. Collaborative governance

A distinction can be drawn between collaborative governance, of which the Californian CALFED project is a prime example, and participatory governance, examples of which are discussed in the next section. CALFED was a multi-layered structure where stakeholders worked deliberatively in framing new questions and developing new responses to the problems in the Sacramento-San Joaquin Delta. While the public were invited to look on, the actual work was done by representatives of the stakeholders, well resourced participants with direct involvement in the delta.

The CALFED research⁴⁴¹ identified some favourable conditions for the emergence of collaborative governance arrangements:

- An impasse that makes warring parties ready to negotiate alternatives;
- A relative balance of legal, economic and political power or the resources and commitment to equalise power differences between participants;
- Pre-existing social capital and networks;
- Stakeholders with resources and expertise necessary to generate solutions;
- Political mandate, pressure and support;
- Access to external financial resources not otherwise available to participants;
- Presence of shared practical tasks;
- Initial agreements;
- Self-organising rather than externally imposed structure;
- High-quality agreed upon information sources;
- Agreements when the support is overwhelming;
- External legitimacy of the process;
- Continuous trust building activities and genuine engagement in productive dialogue;
- The presence of boundary organisations – different expertise and stakeholders willing to work together, using boundary tools such as maps, models and accessible data;
- Conversation, translation and exchange to produce something greater than the sum of the parts;
- Professional facilitators to synthesize ideas;
- Production of a group “inter-language”;
- Maintenance of relationships between participants and their constituents and communities;
- Constituents are not part of the agreement but are part of the ‘inter-language’;
- Participants free from role they play in public arenas through closed door discussions so as not to undermine the legitimacy of the group, but also public discussions to expose their constituents;
- Renewal of participants so as not to entrench familiar ways and methods;
- As new inter-language may not translate into concrete actions, need ‘bridge researchers’ who can switch between research and implementation; and
- Government involvement (including conventional regulation).

CALFED research also identified some limitations of collaborative governance:

- It privileges mainstream active players and marginalises weaker ones;
- Some argue the need to exclude marginalised or extreme views to get a pragmatic result while others say it is important to put values to the test and not shy away from conflict;
- Public discussions (participation) are not always accessible or provide opportunity for real citizen input into the collaborative process and stress the need for public reporting as well;
- Increases democratic deficit by strengthening those with greater access and expertise, legitimising the dominant logic and language;

- Alternatively, collaborative governance is a pragmatic response to a conflict and so makes sense to involve those with interest, expertise and ability to end a stalemate and reach a compromise;
- Groups and citizens that fail to access collaborative governance typically have limited access to representative democratic arenas;
- While collaborative governance is a complement rather than substitute for representative institutions, it is not risk free:
 - It takes time and money from normal governing;
 - Governments may use it to evade hard decisions, diffuse political responsibility or use it to rubber-stamp hard decisions and as a pretext to return to authoritative governing;
- There were still problems in transparency, accountability and oversight in the CALFED process;
- The CALFED approach seeks to re-engineer and control as opposed to a precautionary approach to limit human interventions on ecosystems and customs given the limitations of our knowledge; and
- A unified complete picture as attempted by CALFED is almost impossible to construct.

Resolution of conflict is more difficult when more interests are involved and those interests are more entrenched. The California delta has a long history of development and conflict, providing an example that Queensland should strive to avoid.

5.4. Forms of public participation

There are a number of examples of ideas and mechanisms for ensuring that the community is able to participate effectively in decisions and policies that affect their lives. Participatory governance is where citizens have an active role in government decision-making. Some of these examples are discussed below. While this study focuses on larger policy issues, some examples are more project specific but nonetheless instructive.

Mechanisms for making citizens joint decision-makers

Empowered participatory governance aims to deepen the ways in which people can participate in and influence policies and decisions which affect their lives.⁴⁴² Empowered participatory governance is a framework that is built upon bottom up participation in which those involved listen to other stakeholder's positions and generate group decisions based on due consideration of the various perspectives.⁴⁴³ Fung and Wright argue that participatory governance mechanisms have the following features:

- devolution of decision-making powers to mechanisms which have public authority;
- coordination and supervision of the mechanisms by a strong central body to ensure accountability, transparency and the quality of decisions;
- attempts to harness state power; and
- recognition of the importance of alternative forms of power which assist in opening up public spaces.⁴⁴⁴

The following are examples of empowered participatory governance models.

The process involved in negotiating *Habitat Conservation Plans (HCPs)* in the United States involves a number of different stakeholders working together to develop large scale plans.⁴⁴⁵ HCP's are made under the *Endangered Species Act* as a waiver to the prohibition on taking endangered wildlife.⁴⁴⁶ An HCP allows human activity to occur in the habitat of endangered wildlife so long as any taking of wildlife only occurs incidentally and the human activity does not impair the chances of the wildlife's recovery and survival. The HCP also includes measures to mitigate take.⁴⁴⁷ The process involved in developing several HCPs has, in many cases, been deliberative and involved officials from government environment departments, developers, community organisations and environmentalists. The government has released a guide to

preparing HCPs which identifies groups of stakeholders that come together as steering committees to deliberate in relation to an HCP.⁴⁴⁸ The guide notes that:

The question of whether to establish a steering committee may be difficult for non-governmental applicants. State or local governments typically embrace the steering committee idea early in the process because of their desire to obtain consensus from the community. On the other hand, private landowner applicants may feel that the creation of a steering committee will lead to confrontation or the intrusion of outside interests into proprietary or sensitive economic matters. However, applicants should be aware of the potential benefits of a steering committee. These include identification and resolution of issues before they cause delays later in the process, development of a HCP that enjoys greater support in the community and the cooperation of agencies or private conservation organisations that may be needed to help implement the conservation program.⁴⁴⁹

The HCPs, which result from these processes are, by many accounts, extremely successful because they set out agreed goals and the measures to achieve the goals and monitoring regimes.⁴⁵⁰ An information database has also been established to ensure that different HCP stakeholders can learn from each others' experiences and track the performance of other HCPs.⁴⁵¹ It is also important to note that:

- steering committees may not be appropriate for the development of all HCPs;
- steering committees are not required by law or by government policy – it is up to the project proponent to appoint a steering committee if they believe it is necessary or desirable; and
- although government agencies are not required by law to serve on HCP steering committees, they tend to encourage project proponents to invite them to participate.⁴⁵²

Questions for discussion

Q5.1: Have you been consulted by a CSG company in relation to a CSG proposal? If so, do you think the process enabled your views to be seriously taken into consideration?

Q5.2: Have the committees or working groups established as part of the CSG industry provided enough information for you to understand how it affects you and your community?

The **Delbessie Agreement**, formally known as the *State Rural Leasehold Land Strategy*, is a cooperative land management system through which the Queensland government collaborates with rural leaseholders.⁴⁵³ The Agreement was a partnership between the Queensland Government, Agforce Queensland and the Australian Rainforest Conservation Society.⁴⁵⁴ The system established by the Agreement allows landholders to engage actively through the provision of resources to assist with land management planning and through the condition assessment process and the negotiation of land management agreements (**LMA**).⁴⁵⁵

LMAs are required for all new and renewed leases over rural leasehold land and are negotiated between the rural leaseholder and the relevant Government department based on the outcome of an assessment of the condition of the land.⁴⁵⁶ LMAs must contain details in relation to the condition of the land and must establish agreed management outcomes for any land degradation issues.⁴⁵⁷ LMAs must also establish agreed monitoring and reporting programs, agreed processes to verify the performance of the landholder and agreed dispute resolution and review processes.⁴⁵⁸ Whether the provisions of an LMA have been complied with by the landholder is a relevant factor for consideration when renewing a lease.⁴⁵⁹ Certain remedial actions can also be taken against the landholder if the LMA is not fulfilled.⁴⁶⁰

As at April 2011, fifty LMAs had been approved across Queensland.⁴⁶¹ One of the main criticisms of the Delbessie Agreement is the absence of indigenous representatives.⁴⁶² This absence is reflected in the LMAs which appear to ignore or underestimate the legal effect of native title interests on the ability to achieve long-term leases.⁴⁶³

Several examples of empowered participatory governance involve citizens in budget setting and the allocation of public funds. For example, **participatory budgeting** has been introduced in Brazil where a Regional Assembly exists for each of the sixteen administrative regions within the city of Porto Alegre.⁴⁶⁴ The Assembly meets twice a year to settle budget issues and is made up of government executives, administrators, representatives of community organisations and any interested citizens who live in the region.⁴⁶⁵ Each Assembly is coordinated jointly by a government executive and community representative.⁴⁶⁶

Another example of participatory budgeting involves village governance in the Indian states of West Bengal and Kerala. In West Bengal, a number of deliberative bodies called Gram Sabhas were established to increase the accountability of government representatives and are made up of around 10,000 people from the local area.⁴⁶⁷ The Gram Sabha meets once a year to review the action items from the last budget and review the new budget.⁴⁶⁸

Another example of participatory budgeting involves the City of Canada Bay Council (NSW). The Council formed a citizen's panel made up of 30 people selected from a random sample of residents to reflect the age and gender profile of the community.⁴⁶⁹ The panel met five times between April and August 2012 to assess and make recommendations about the services and preferred funding sources for services provided by the Council.⁴⁷⁰ The recommendations are intended to form the basis of services provided by the Council until 2017.⁴⁷¹ The citizen's panel was set up with the assistance of The New Democracy Foundation, a not-for-profit research organisation based in Sydney aimed at improving democracy and community participation in decision-making.⁴⁷² It formed part of a broader strategy by the Council to enhance community engagement which also involved random sampling surveys and face-to-face engagement events with members of the community. The recommendations of the citizen's panel were reported to the Council in 2012.⁴⁷³

Question for discussion

Q5.3: Could a participatory budgeting model be incorporated into the governance framework in Queensland to ensure that local communities have a say in how CSG royalties earned by the Queensland government are spent?

Citizen juries or boards bring together a representative sample of citizens to deliberate on complex policy issues.⁴⁷⁴ Participation in citizen juries is strictly managed to ensure that members are representative of the community affected by the issues being considered.⁴⁷⁵ The primary objective is to either reach a decision or devise a set of recommendations.⁴⁷⁶ Some citizen juries may be convened at the request of the decision-maker or the recommendations may only have an indirect influence on the decision-making process.⁴⁷⁷

Generally, a citizen jury is selected by a neutral facilitator through a procedure designed to ensure that the sample is representative of the population at large.⁴⁷⁸ The facilitator then presents the jury with a statement of the problems to be addressed.⁴⁷⁹ The facilitator and the jury then decide who to call as witnesses.⁴⁸⁰ If consensus cannot be reached, a majority vote is often used to resolve conflicts.⁴⁸¹ At the end of the deliberation, jurors are often given the opportunity to evaluate the process and make their views public.⁴⁸²

The benefits of citizen juries include:

- the ability to reach out to members of the wider public that may not be included in formal participatory processes;⁴⁸³
- the government has an opportunity to state their position about a particular issue in terms that are easily understandable; and⁴⁸⁴
- a well reasoned decision will gain greater acceptance with the public when the decision is made by other citizens rather than bureaucrats.⁴⁸⁵

Some of the problems associated with citizen juries include:

- jury members often lack technical understanding and as such they are disadvantaged when asked to address technical issues;⁴⁸⁶
- although the jury members are intended to be a representative sample of citizens, in reality a number of important interest groups may be excluded. For this reason, citizen juries may be inappropriate where the decision affects a particular group or community rather than the public at large,⁴⁸⁷ and
- depending on the process used, the results of the deliberation may be merely advisory and may have no legislative basis or formal connection to government decision making processes.⁴⁸⁸

One example is the *Citizens Jury on Dakota County's Comprehensive Land Use Plan*. This jury was convened in 1997 at the request of the local government to determine public opinion about important land use planning decisions facing the region.⁴⁸⁹ This was a novel approach as most citizen juries occur separately from a specific government decision-making process.⁴⁹⁰ Though the local government was not obliged to implement any of the recommendations formulated by the jury, the final *Comprehensive Land Use Plan* reflected the expectations of the participants and included several of the recommendations made by the jury.⁴⁹¹

Question for discussion

Q5.4: Could any of the models discussed in this paper better protect community and environmental interests and engage the community in project developments (such as the US Habitat Conservation Plan, citizen jury or Delbessie Agreement model)?

Regulatory negotiation is a consensus building process in which parties work together with the government to develop policies or regulations.⁴⁹² It provides a formal process for stakeholders to negotiate the content of regulations and promotes a method of dispute resolution that uses consultation, mediation and negotiation rather than litigation.⁴⁹³

Fiorino argues that regulatory negotiation processes are more reliable and legitimate when they are applied to decisions about how to approach a particular issue.⁴⁹⁴ Regulatory negotiation is less useful for decisions that determine acceptable levels of risks or the distribution of risks because the participants only represent interests, not values.⁴⁹⁵

The benefits of regulatory negotiation include:

- if parties reach a decision, they are expected to abide by and implement it. The groups involved are therefore more likely to cooperate and solve problems rather than take sides;
- participants are generally allowed to discontinue at any time if the discussion does not appear productive;
- participants may have the opportunity to seek judicial review of the final decision or consensus that is reached; and
- it offers a forum and incentive for policy deliberations between government and other stakeholders and therefore, a chance to generate new ideas and options.⁴⁹⁶

The problems associated with regulatory negotiation include:

- participants can often be professional representatives rather than members of the public;⁴⁹⁷
- participants may be unable to represent the public interest;⁴⁹⁸ and
- the cost of participating may be high because groups are required to have technical experts that are able to travel to the location where the regulatory negotiation is being held. This means that smaller interest groups may not have the resources to fully participate.⁴⁹⁹

The United States Environmental Protection Agency (EPA) began a *Regulatory Negotiation Project* in 1983 and by 2002, had successfully reached a consensus on five of the seven regulatory negotiations that were initiated.⁵⁰⁰ The objective in each regulatory negotiation was to reach a consensus that the EPA could use as the basis for a Notice of Proposed Rulemaking.⁵⁰¹ Parties participating in the regulatory negotiations retained their right to judicial review of the final decision or recommendations.⁵⁰² One of the regulatory negotiations involved water management issues in the Clark Fork River Basin in Montana where miners, ranchers, municipal officials and environmentalists came together after decades of conflict to resolve their dispute.⁵⁰³ A non-inclusive process is likely to result in continued disputation.

Devolving decision-making powers – *subsidiarity*

Subsidiarity is the idea that decisions within a political system should be made at the lowest possible level unless it is more effective for the decision to be made at a higher level. The principle of subsidiarity originated in the European Union (**EU**) and was first outlined in the Maastricht Treaty as follows:

In areas which do not fall within its exclusive competence, the European Community shall take action only if and in so far as the objectives of the proposed action cannot be sufficiently achieved by the member states and can therefore, by reason of scale or effects of the proposed action, be better achieved by the Community.⁵⁰⁴

From a strictly legal standpoint, the principle of subsidiarity is only applied in the relationships between the EU and the member states.⁵⁰⁵ As such, there is no requirement for the national governments of its member states to delegate authority to their local counterparts unless a task can be accomplished more effectively and efficiently at the local rather than the national level.⁵⁰⁶ From a political perspective, however, the principle is likely to have a positive impact on local authorities because citizens now expect political actions to be taken as close to them as possible.⁵⁰⁷

Kostov argues that local governments are in the best position to determine the location of large infrastructure projects because their constituency consists of the community that will be most affected.⁵⁰⁸ Accordingly, this means that local governments are more likely to select an option that is beneficial to the local economy and least harmful to the environment.⁵⁰⁹ However, there is also an argument that due to the importance of such projects, national governments should retain the power to block local government decisions that threaten the realisation of the projects.⁵¹⁰

Delegating decision making power to local governments also offers the benefits of motivating individuals to actively participate in the political processes and creating greater emphasis on local environmental issues.⁵¹¹ However, there is also the risk of corruption and conflict with other local governments.⁵¹²

The correct implementation of the principle of subsidiarity has been subject to extensive debate, with various commentators making recommendations for its successful application. Emphasis is commonly placed on the importance of cooperative relationships, with Collier noting that subsidiarity must not simply involve relocating powers to lower levels, but should imply the cooperation and coordination of activities between relevant levels of government.⁵¹³

In considering EU planning law, Rivolin argues that subsidiarity should be employed as the principle underlying a feasible and effective form of coordination.⁵¹⁴ If this were to occur, subsidiarity would require that regulatory land use powers in all European countries be the exclusive responsibility of local decision making bodies, assigning higher level institutions other tasks such as the formulation of general policies and overall territorial strategies.⁵¹⁵

Some EU member states have made subsidiarity part of their national legislation. One example is Italy, whose parliament approved amendments to the Constitution in 2001 providing that "administrative functions belong to the municipalities except when they are conferred to provinces, metropolitan cities, regions, or the state in order to guarantee uniform practice."⁵¹⁶

Although subsidiarity has often been promoted as a mechanism for bringing decision-making closer to citizens,⁵¹⁷ many commentators have argued that in practice, it has had little impact on the reallocation of responsibilities.⁵¹⁸ The revised EU Drinking Water Directive is a good example,⁵¹⁹ in that although the setting of aesthetic standards was delegated to the member states, the principle policy decisions remained at the EU level.⁵²⁰ The drafting and implementation of the Drinking Water Directive further emphasises the role of politics in the debate about subsidiarity, as discussions focussed around the specifics of legislation, rather than achieving better governance as a whole.⁵²¹ Subsidiarity has been described as a 'two-edged sword' which can cut against action at both the EU level and at the member state level.⁵²²

Others believe that subsidiarity offers a powerful tool for achieving coherent allocation of governance responsibilities in the EU.⁵²³ As the role of decentralised governance becomes increasingly accepted in environmental management, more emphasis has been placed on the importance of the application of subsidiarity in assigning tasks across a number of levels of government.⁵²⁴

In support of the values of decentralisation, Bermann notes that while subsidiarity promotes strong, central political unity when necessary to advance policy ends, it also promotes the advantageous benefits of localism whenever possible.⁵²⁵ It is important to note that environmental problems require different solutions in different localities. Soils, vegetation, groundwater hydrology, atmospheric conditions and a number of other factors will vary from place to place and will influence how a particular problem is solved.⁵²⁶ A governance framework that incorporates the principle of subsidiarity would allow these factors to be considered on a case-by-case basis.⁵²⁷

The principle of subsidiarity has also been used in other parts of the world with varying degrees of success. For example, the principle of subsidiarity was applied less formally during the installation of an irrigation system in the Gal Oya district of Sri Lanka and the democratic election of local governments as recipients of decentralized management rights in Mali and Uganda. The latter was less successful, as restrictive management plans effectively acted to "re-recentralise any autonomy implied by the transfer of rights."⁵²⁸

In Russia and Bulgaria, local authorities have demanded greater control over the decision making processes relating to the proposed construction of a number of oil pipelines and other large infrastructure projects.⁵²⁹

In Bulgaria, national legislation guarantees, to a degree, the role of local governments in making decisions in relation to projects that may have an impact on the environment. However, the national government retains the power to make decisions in relation to pipeline construction projects. In many cases, broader structural issues have also acted as obstacles to increased involvement of local governments. For example, a local government that is seen to conflict with the national government may face budgetary constraints.⁵³⁰

The Russian constitution gives the national government powers that concern the country as a whole while local governments are given powers in relation to issues of local importance. Pipeline projects have traditionally been considered issues of national importance and therefore are beyond the scope of local governments. The Russian constitution specifically empowers local governments to implement local budgets and introduce local taxes, meaning that Russian local governments are less dependent on national funds than Bulgarian local governments.⁵³¹

In Australia, the adoption of the Regional Delivery Model by the Federal Government involved the process of decentralizing responsibilities for allocating public funds to practical activities in natural resource management. Some commentators have criticised the Regional Delivery Model on the basis that regional bodies are struggling to find workable arrangements for genuine community-based governance given the size of the regions.⁵³² This difficulty is coupled with the challenge of securing community engagement as the new regional bodies are seen as remote from the 'real' community.⁵³³

The distribution of power under our constitution between the commonwealth and the states and the fact that local government is not recognised in the constitution are significant challenges to delegating decision making power. Through its new regional planning process, the Queensland Government is "giving greater autonomy to local government to ensure that communities have a real say in their future".⁵³⁴

Dispute resolution mechanisms

Alternative dispute resolution (**ADR**) is a mechanism for negotiating and resolving disputes once an issue has already come to a head. While this study is primarily interested in mechanisms for facilitating the involvement of citizens in decisions that affect their lives before a dispute arises through assessment and planning processes, ADR is an important mechanism for resolving land use conflicts.

The flexibility of ADR makes it an appropriate method to deal with large scale public policy disputes.⁵³⁵ There are usually multiple parties involved in environmental and land use disputes and ADR can be effective in bringing all these parties to the discussion table and narrowing the issues in dispute and promoting resolution of the conflict.⁵³⁶

The following points emphasise some of the issues with using ADR for large scale public policy disputes:

- the fact that people other than those participating have a stake in the outcome means that the discussions cannot be undertaken with the same degree of confidentiality and discretion as in private disputes;⁵³⁷
- when the dispute involves conflicts over major environmental issues,⁵³⁸ the idea that once decisions are made they have irreversible consequences for the wider community needs to be accepted and incorporated into discussions;⁵³⁹
- there are normally more than two parties involved and previous case studies have shown that parties frequently make unexpected alliances. This indicates that representatives of groups involved in the dispute need to maintain open and frequent contact with their reference group;⁵⁴⁰
- in environmental disputes in particular, the economic and political context is constantly changing;⁵⁴¹
- the government's involvement can change the course of an ADR dispute, particularly where the ADR process is government funded;⁵⁴²
- the mediator's role is to guide the parties through the process and facilitate communication between them;⁵⁴³
- mediators can raise ideas or 'soft' proposals but the power to make decisions remains with the participants,⁵⁴⁴ and

- the role of experts in ADR can take many different forms. However, it has been suggested that the best position for experts in the ADR process is as consultants to the group as this allows all participants equal access to the expert.⁵⁴⁵

The following are examples of public ADR processes:

- The Conondale Range Rezoning⁵⁴⁶ was a dispute that arose when the government pledged to double the area of national park in Queensland. A Zoning Working Group was convened over a six month period with various stakeholders. This dispute was the first time that all interested parties worked together to resolve important land use issues in Queensland. Mediators from the Queensland Government Community Justice Group met with each group individually to build confidence before undergoing the formal mediation process. The participants stated that the process allowed everyone to maintain focus and draw together ideas for clarification and testing.⁵⁴⁷ After the mediation process, the parties to the dispute noted that they had an improved relationship and could communicate better so as to avoid future conflict.⁵⁴⁸
- The Paddington dispute involved a long-term, very public conflict between the Brisbane City Council and the local community concerning a draft Development Plan for Latrobe and Given Terraces, Brisbane. The Council formulated a new Area Plan in partnership with the local community. To assist community participation in the process the Council engaged an independent facilitator and mediators from the Queensland Government Community Justice Group. A wide range of community interest groups were represented in the joint working group that was formed. A number of meetings were held over six months, by which time a draft development plan was agreed to by all.⁵⁴⁹
- The Tasmanian Forests Statement of Principles to Lead to an Agreement was negotiated by a number of conservation and forestry groups including Timber Communities Australia, various forestry unions, Environment Tasmania and the Tasmanian Wilderness Society.⁵⁵⁰ In December 2010, Bill Kelt AC was appointed as an independent facilitator to assist the parties to progress the negotiations.⁵⁵¹ Several environmental groups withdrew their support for the negotiations on the basis that the Tasmanian Government failed to implement the interim outcomes that had been agreed.⁵⁵² The Statement of Principles was also criticised for its limited focus on public land and for imposing further limitations on the forestry sector.⁵⁵³ More recently, attempts were made to reach agreement on the future of Tasmanian old growth forests, and on 30 April 2013, the Tasmanian Parliament passed the *Tasmanian Forests Agreement* into law after decades of conflict.

Questions for discussion

Q5.5: Would a formal large scale Alternative Dispute Resolution (ADR) process assist in developing a more comprehensive approach to land use conflicts?

Mechanisms for participation within representative systems

Community advisory committees (**CACs**) are formally appointed groups of people with a wide range of expertise and networks regarding a particular matter.⁵⁵⁴ The role of a CAC is to advise the government on an issue from a community viewpoint.⁵⁵⁵ Although CACs do not have authority to make binding decisions because they are merely an advisory body, they do have the ability to influence decision-making through their advice to government.⁵⁵⁶

Arnstein argues that CACs can be an illusory form of participation if there is only a one way flow of information with the government seeking to educate, persuade and advise the citizens and not the reverse.⁵⁵⁷

The benefits of CACs include:

- meetings are generally open to the public and participation in the discussion is encouraged as time allows,⁵⁵⁸
- citizens have the opportunity to learn the technical information relating to the project before they comment,⁵⁵⁹
- participants can engage in discussions with a number of other stakeholders, either internally as part of a committee or externally with other organised interest groups,⁵⁶⁰ and
- generally effective in terms of obtaining information from third parties and conveying that information to the public.⁵⁶¹

Some of the problems with CACs include:

- the broad range of interests represented can result in a number of conflicts in relation to data, interests, structures, values and relationships,⁵⁶²
- although they are intended to represent the public, in practice participants may not be representative in terms of income and education,⁵⁶³ and
- their effectiveness is limited by the ability of participants to reach common goals and maintain interest in the issues being discussed.⁵⁶⁴

Some examples of CACs include:

- A CAC model was put in place under the Murray Darling Basin Ministerial Council and continued under the Murray Darling Basin Authority (**MDBA**). The Ministerial Council appointed a group of people with a wide range of expertise.⁵⁶⁵ The Murray Darling Basin Agreement which was signed by the Commonwealth, New South Wales, Victorian and South Australian Governments in 1987, provided for the appointment of the CAC.⁵⁶⁶ The CAC was composed of 22 members plus an independently appointed Chairman.⁵⁶⁷ Members were appointed for a term of four years and were selected on the basis of their skills, expertise and networks.⁵⁶⁸ The CAC was formed to advise the Ministerial Council from a community viewpoint on natural resource management issues within the Basin.⁵⁶⁹ CAC members did not represent the Basin community rather they represented an informed cohort of the population capable of articulating the diverse views, needs and aspirations of individuals and communities across the Basin.⁵⁷⁰ The CAC members came with individual vested interests that was considered a positive feature as it meant that they could reality test policy initiatives from the practical perspective of the 'policy user'. Wellman has argued that the CAC allowed networking and wider consultation with community groups in the Basin.⁵⁷¹ The CAC which was continued under the MDBA now has two community committees – the Basin Community Committee and Subcommittee. The Basin Community Committee provides advice to the MDBA about the performance of its functions and is composed of members who have expertise or interest in community, water use, environmental water management and local government matters. However, the former CAC and Basin Community Committee were not involved in decision-making and accountability for all decisions still rests with the MDBA.⁵⁷²
- California's *Tanner Act* provides for decisions to be made about the location of toxic waste facilities through local assessment committees.⁵⁷³ These committees give input into the location decisions, although they do not have any decision-making capabilities.⁵⁷⁴ Committees are made up of seven individuals, chosen by a local agency, to reflect the makeup of the proposed community that will be affected by the proposed toxic waste site.⁵⁷⁵ The committee is made up of three representatives of the community, two representatives of public interest groups, including environmental interest groups, and two representatives of business or industry that are affected by the site.⁵⁷⁶ The *Tanner Act* does not have a consistent record of effectiveness, despite the community involvement in location decisions.⁵⁷⁷ Its limited successes appear to be due to the technical expertise and support from elected officials, but also because the community felt that its representatives had a voice and influence in the decision-making process.⁵⁷⁸

- Section 86 of the *Local Government Act (1989)* (Vic) allows local governments to delegate any of its functions, duties or powers to a special ‘citizen committee’ via an instrument of delegation.⁵⁷⁹ Committees set up under section 86 vary in size and formality, and are usually made up of either technical experts or older members of the community who have the time to volunteer and be involved on an ongoing basis.⁵⁸⁰ A study on citizens committees in local government in Victoria found that the focus of the committee was on the operation and task assigned, rather than on the committee being representative of the community, and that a shift in focus to make the committees more representative of the community may have an adverse effect on the committee’s effectiveness.⁵⁸¹ Nevertheless section 86 committees still enable members of the community to become involved in and responsible for decision-making in their local area and therefore have potential for improving inclusive and representative community engagement.
- A recent, local and relevant CAC is the Western Rivers Advisory Panel (**WRAP**)⁵⁸², established by the Queensland Government in 2012. The WRAP was established to advise the Minister for Natural Resources and Mines, the Hon Andrew Cripps MP, on “alternative strategies to protect Western Rivers, while still allowing sustainable developments to proceed” (including the possibility of “small scale” irrigation), following the Government’s election commitment to repeal *Wild Rivers* protection legislation.

The WRAP was comprised of representatives from the following stakeholders:

- 14 local governments
- AgForce Queensland
- Desert Channels Queensland
- Georgina – Diamantina - Cooper Aboriginal Group
- Cooper Creek Catchment Committee
- Georgina – Diamantina Catchment Committee
- Mining, gas and petroleum interests
- Lake Eyre Basin - Community Advisory Committee
- Lake Eyre Basin - Scientific Advisory Panel

The WRAP met on six occasions in 2012 and 2013, facilitated by officers of the Department of Natural Resources and Mines, and reported to the Minister in July 2013. The report is important because it presents the diversity of views of the varied interests.

In addition to the WRAP meetings, the WRAP surveyed stakeholders and some constituents to outline the natural assets and values of the region worthy of protection, such as access to surface water, natural flows, water quality, health of aquatic fauna and vegetation and native pastures and heritage. It also identified issues of concern, such as weeds and pests, weirs, obstruction by roads to flows, development and petroleum and gas extraction adjacent to aquatic areas.

Stakeholders ranked the risk associated with these issues of concern and expressed their views under a number of headings including mapping, consultation, mining, irrigation, industrial development, etc. The report describes how each of these issues was decided:

- While 51 WRAP members’ responses supported mapping and one disagreed, “there was a wide divergence of views...as to how the ‘natural assets and values’ that should be protected...should be defined or mapped” with AgForce against retention of the Wild Rivers mapping layers and the resources sector highlighting the importance of mapping integrity.
- The WRAP terms of reference sought alternative strategies to replace the Wild Rivers Act, which should also reflect the Lake Eyre Basin Agreement. 70 WRAP members agreed, while 20 disagreed. The resources sector favoured abandonment of the Wild Rivers terminology and did not support an alternative protective strategy to protect the natural assets and values that affected the Lake Eyre Basin Agreement.

- In relation to large scale mining in and adjacent to aquatic areas, the resources sector, along with local government and AgForce, supported the power of the Coordinator-General to override alternative strategies to protect the natural assets of the Basin.
- The resources sector also did not agree that future regulatory changes should not reduce river protection from large scale mining, did not agree that mining should be prohibited on floodplains and major tributaries and did not agree that conditions should be imposed to preclude mining in 'high value' areas, against the views of the majority.
- The resources sector did not agree that mining conditions must include no pollution of river systems. In short, the resources sector had very limited acceptance of the need for environmental protection.
- In relation to industrial development adjacent to aquatic areas, all agreed to a risk based approach, with intensity of regulation being consistent with the scale of activity. However, local government, AgForce and the resources sector were opposed to any alternative strategy for protecting the natural assets and values of the Basin reflecting the Wild Rivers approach to the regulation of industrial development.
- The WRAP was a continuation of the former Wild Rivers Committee, established by the previous State Government. In evolving into the WRAP, local environmental and some Indigenous representatives were omitted. The WRAP report states that some members supported a broader level of representation with the re-inclusion of environmental representatives. However, the resources sector, local government and Ag Force opposed this broader representation. That other groups were not invited to return suggests that the minister intended to exclude the environmental and Indigenous perspective.
- The majority of WRAP participants supported recommendations to introduce protections to the western rivers basin. The WRAP report suggests that the resource sector was intransigent on the development of environmental protections similar to the repealed wild rivers protection framework. As a consequence, some of the protections developed through the wild rivers process have not been maintained in line with the broader regional and catchment priorities of the Lake Eyre Basin Agreement.
- Importantly, the WRAP also recommended that the Minister consider a broader community consultation program once it has determined an alternative strategy to the wild rivers model for protection of the basin's natural assets and values. All members supported this proposal, except the resources sector. The response of the resources sector to proposals for protection of the environment makes it clear that in this setting at least, the sector saw little need to compromise, perhaps because it felt its position was assured. The panel's recommendation that it be permitted to continue to meet does not appear to have been accepted by the minister.

Nonetheless, the WRAP process seemed to enable many of the parties to reach consensus on a range of issues, resulting in some positive outcomes for the western rivers catchment.

The report demonstrates that the process followed was a good one as the different views were disclosed in the report, providing transparency that engenders public confidence in its workings. However, it does not appear from the report, or at least the report does not disclose, that the panel engaged in rigorous analysis of the science as opposed to a presentation of the views and opinions of the stakeholders.

Questions for discussion

Q5.6: Are consultative committees a good example of effective participation?

Participation in planning processes

A CSRM study that surveyed community members in the Surat Basin commented:

One of the biggest challenges in a period of rapid growth is anticipating change so as to prepare adequately and minimise negative effects. A key argument of many interviewees was that development of energy resources required more strategic development of infrastructure and extensive community consultation. This was seen as essential to managing growth in a controlled way so it does not create a bubble that will burst, as well as to relieve the pressure on local governments whose capacity to manage the boom has been strained.

The Queensland Government's draft *State Planning Policy* provides a new framework for local councils in developing local planning schemes, establishing the principles of state interest to guide all Queensland local authorities. However, it is not clear how the planning processes will evolve at the local levels with ongoing input from the public to ensure that these policies and plans are living documents.

Land-use and social planning at the regional scale has the potential to guide resource development decision making, and strategic planning can assist to prioritise actions and coordinate the delivery of investments across scales In both cases planning should represent a collaborative process, clearly articulate preferred futures, and have effective links to the EIA and approvals processes.

Under the *Sustainable Planning Act 2009*, *Regional Planning Committees* (RPCs) have been established for Central Queensland, Cape York and the Darling Downs regions to advise on the content of each of the regional plans. Each RPC is expected to meet four times a year and will exist for the duration of the time it takes to prepare and launch the final regional plan.⁵⁸³ The consultation draft regional plans for the Darling Downs and Central Queensland regions were released in June 2013 for comment and the final plans were published in October 2013, but the RPCs for both plans have now been discontinued. Except in relation to conflicting agricultural and mining interests (see also the *Regional Planning Interests Bill* introduced on 20 November 2013), it is not clear how the plans will link to the assessment and approval processes in relation to other concerns and interests.

Regional Planning Committees

In an advice prepared by the Queensland government in relation to submissions on the Regional Plans, it was stated that "the interface between resource exploration around population centres is now being managed through a comprehensive and consultative statutory regional planning framework."⁵⁸⁴ Consultation is intended to occur through the establishment of Regional Planning Committees (**RPC**).

The *Sustainable Planning Act 2009* (**the SPA**) provides the statutory basis for RPCs. Under the SPA, the Minister may establish as many RPCs as the Minister considers appropriate.⁵⁸⁵ The membership of a designated region's RPC is decided by the regional planning Minister and is notified in the gazette.⁵⁸⁶ A designated region is a local government area that is prescribed as a designated area under a regulation.⁵⁸⁷ Members of a designated area's RPC must be either a Minister, a mayor, a councillor of a local government region, or a person who has the appropriate qualifications, experience or standing to be a member.⁵⁸⁸ In relation to an RPC for a region that is not a designated region, membership can be identified in general or specific terms and it must include representatives of appropriate local governments, without limiting the scope of possible membership.⁵⁸⁹ A local government can choose not to be represented on a RPC for a region that is not a designated region.⁵⁹⁰

The functions of an RPC for a region that is not a designated region are the functions stated in the RPC's terms of reference.⁵⁹¹ In relation to a designated region's RPC, its function is to advise the regional planning Minister for the region about the development and implementation of the region's regional plan.⁵⁹²

There is no requirement under the Act about how consultation is to occur and the RPCs will cease once the plan is finalised.

Questions for discussion

Q5.6: Is the Queensland Government's new regional planning process inclusive and representative of community views?

Q5.7: Should the new regional planning process include community participation on an on-going basis?

Q5.8: Does the new regional planning process adequately link with assessment processes?

Q5.9: Is the consultation process sufficient to incorporate community views adequately into long-term planning of developing industries like CSG?

Q5.10: Table 1 below invites comment on the effectiveness of current participatory mechanisms.

Table 1: Goals and criteria for evaluating public participation mechanisms.

Please insert any comments that you wish to make in the table below. Think about what level of assessment/decision making your comments apply (whether existing or proposed stage). For example, do your comments apply to project specific evaluation, preliminary assessment, regional assessment of cumulative impacts or longer-term planning?

Goals and criteria ⁵⁹³	Comments	Level
<i>Educating and informing the public</i> Has the public been provided sufficient information to contribute to deliberations?		
<i>Incorporating public values into decision-making</i> Did the public processes you contributed to, provide an opportunity for people to express their underlying values? Was information from the participation process used to inform decisions? In your view, did it have an impact?		
<i>Improving the substantive quality of decisions</i> Did the participation mechanism improve participant satisfaction? Were new alternatives generated? Were new facts revealed?		
<i>Increasing trust in institutions</i> Do you have confidence in the consultation mechanisms and decision-making processes?		
<i>Reducing conflict</i> Did the participation mechanism		

<p>reduce political or public opposition to the decision as reflected in testimony at public hearings or political debates?</p> <p>Did the decision lead to less litigation compared to the reasonable norm?</p> <p>Did the participation mechanism improve or worsen relationships with other stakeholders?</p>		
<p><i>Achieving cost effectiveness</i></p> <p>How much did the participation mechanism cost you in terms of time or money?</p> <p>What costs did the participation mechanism help to avoid?</p>		
<p><i>Other</i></p>		

Question for discussion

Q5.11: What other criteria or goals would you use to judge the adequacy or effectiveness of the current participatory mechanisms?



6. The role of politicians and government in public participatory processes

6.1 Introduction

In a 'representative democracy', elected representatives make decisions on behalf of the people. The people then hold the representatives accountable through the election process. A cornerstone of this model is that politicians deliberate in reaching decisions on behalf of the people. Ideally, deliberation involves deeper consideration of all relevant information and issues, takes account of different perspectives, and ensures a proposal is rational, affordable and in the public interest. However, politicians rarely have the time and resources to fully engage with the debate and heed all informed views before making a decision. In fact, on occasions, their ability to act decisively even if not fully informed is seen as an electoral positive.

In the last chapter, examples of different deliberative processes in which citizens play a greater role were examined. The question in this part is what role politicians should play, if any, in those participatory processes. It is important to consider whether such processes could undermine the authority and responsibility of elected representatives and government or can enhance the democratic process.

The role of politicians is central because:

- the deliberative process that underpins democratic outcomes relies on fully informed politicians making decisions in the public interest, both in the short-term and for future generations;
- politicians at Commonwealth and State levels have broader perspectives than local or even regional decision-makers, having more interests to balance as their responsibilities grow larger;
- the party that forms government, advised by the bureaucracy, ultimately has the ability to get things done through its collective power to pass laws and expend public moneys.

The purpose of this chapter is to draw on some of the examples of direct political involvement in planning, assessment and dispute resolution in resource development.

These examples show us that:

- Australia does not share the US tradition of sponsored agreements through legislative reform, and without this tradition, merely promoting the results of community deliberations may not yield any clear outcomes.
- Politicians rarely have the time to deliberate on issues to the extent required, so new ways are needed to involve them in community discussions that enable them to fully engage with difficult and complex social issues.
- Government advisory bodies and parliamentary committees are usually just another means by which politicians source information, often without broad input, rather than providing a form of deeper engagement between politicians and citizens.

This chapter will look at how politicians have been included in less traditional governmental processes overseas and in Australia.

6.2 Examples of political/government involvement in collaborative dispute resolution and planning in the UK and USA

In the United States, government advocacy in land use conflict resolution has accelerated in recent years⁵⁹⁴. Governments there are employing Alternative Dispute Resolution (ADR) type processes particularly to resolve land use disputes and sponsoring the outcome through legislation.

In the UK, there has been a groundswell of support for the “involvement of community leaders, voluntary groups, neighbourhood residents and civic associations in the policy decisions which affect their lives...”⁵⁹⁵, in some cases sponsored by political leaders.

US community collaborations

Florida Speaker’s Advisory Committee

Community collaboratives are designed to either advance a shared vision or resolve a conflict.⁵⁹⁶ They may result in just the exchange of information or can lead to a joint agreement or even a commitment to action. One design that a community collaborative model can take is ‘appreciative planning’ that is aimed at achieving common ground among a variety of stakeholders and articulating a set of shared goals or visions. A highly successful example is the *Speaker’s Advisory Committee on the Future* which was initiated by the Florida House of Representatives in 1987 and contained 45 citizens and seven house members. Over a two year period, the Committee developed a set of long term issues and goals which were published in *The Sunrise Report*.⁵⁹⁷ The effort led to close to thirty legislative initiatives including a series of environmental laws.

Forest and Recreation Jobs Act

An ongoing example of a community collaboration being translated into legislation is that of the *Forest Jobs and Recreation Act (FJRA)*. The *FJRA* was introduced in the United States Senate by Senator Jon Tester.⁵⁹⁸ The Bill originated as three distinct collaborative citizen efforts, that of the Beaverhead-Deerlodge Partnership, the Blackfoot-Clearwater Stewardship Project and the Three Rivers Challenge. These projects focused on bringing the community together behind one common vision for dealing with public lands in Montana. The parties to the discussions included loggers, conservationists and horseback riders among others. All parties were heard in the shaping of proposals.

Senator Jon Tester became involved in the project when he recognised the need for better management of public land in his electorate. He wrote a letter to Paul Babb, CEO of Butte-Silver Bow County in 2007 indicating that he had followed the Beaverhead-Deer Lodge Partnership for some time due to his interest in Federal land policy.⁵⁹⁹ He was encouraged to see such a diverse group of people coming to the table to discuss forest use policies and believed the Beaverhead-Deer Lodge forest was large enough for timber harvest, wilderness, livestock grazing and motorized users. He urged the Partnership to keep up the good work and stated that he would continue to support the partnership’s collaborative process.

On 17 July 2009, Senator Tester introduced a Bill to Congress, the purpose of which was promoted as “sustaining the economic development and recreational use of National Forest System land and other public land in the State of Montana, to add certain land to the National Wilderness Preservation System, to release certain wilderness study areas and to designate new areas for recreation.”⁶⁰⁰ The *FJRA* was the first bill to propose new wilderness in Montana in over a decade.⁶⁰¹ The bill was re-introduced to Congress in the 112th second session after being allowed to lapse at the end of the 112th first session. Unfortunately the bill was removed from inclusion in the *Senate Interior Appropriations Bill 2012* and therefore has not yet passed Congress.⁶⁰²

The people behind the initial projects worked for three years to develop the bill by meeting with the public, surveying the potential wilderness locations, modifying proposals and building community support for it. If passed, the bill will create resource advisory committees to allocate stewardship timber projects. Conservation-minded groups alongside other interest groups will be part of the planning process from day one, shaping the direction of forest management. These stewardship timber projects focus on restoration that will help to bring economic health back to the industry.

Owyhee Public Lands Management Act

The *Owyhee Initiative Implementation Act (OIIA)* was introduced to Congress on 3 August 2006 by Senator Mike Crapo after an eight year collaborative effort launched by the Owyhee County Commissioners and the Shoshone-Paiute Tribes.⁶⁰³ The legislation had the potential to set a standard for future public lands management.⁶⁰⁴ It sought to end decades of public lands conflict in south-western Idaho and establish a path for future management of the area. Ranching was to continue while traditional uses and water rights were preserved and wilderness areas designated.

Senator Crapo became involved in the process when he was approached by the Owyhee County Commissioners in 2001. He was asked to help mediate discussion that could lead to collaborative agreement regarding public land management in the county. He met several times with members of the initiative's working group who in July 2006 finally reached consensus on the agreement's language.

In his speech to Congress, Senator Crapo emphasized the collaborative effort to resolve land use conflicts of those involved in the process since the beginning – those who lived on or used the land in Owyhee County. The principal features of the legislation were the development, funding and implementation of a landscape-scale program to review and coordinate landscape conservation and research projects, a scientific review process to assist the Bureau of Land Management, the designation of Wilderness and Wild and Scenic Rivers, the release of Wilderness study areas and the protection of tribal cultural and historical resources against intentional and unintentional abuse and desecration. In general, the *OIIA* was aimed at preserving public lands for future generations.

While the *OIIA* has not been implemented itself, President Obama's signing of the *Omnibus Public Land Management Act 2009* provided a dramatic step forward towards its implementation.⁶⁰⁵ The Omnibus Public Land Management Act also set in motion opportunities for the collaborative effort that produced the Owyhee Initiative Agreement to continue. The Act's subtitle is *F - Owyhee Public Land Management*.⁶⁰⁶

There have been many collaborative community efforts that have been championed by United States congress delegates. The desired result of these efforts is the introduction of legislation to cement the original proposals and decisions formulated in the collaborative sessions. The *Forest Jobs and Recreation Act* as well as the *Owyhee Public Lands Management Act* appear to be good examples of bills championed by members of Congress to protect the long-term public interest and the interests of stakeholders.

United Kingdom

In the UK, interest groups, voluntary organisations and residents groups are more and more seeking to be involved in policy decisions that affect them. Involvement in decision-making can occur at all levels, from broad policy and legislative change to local issues and service design and implementation.

There has been considerable research on and experimentation with different models of community participation. There is also a large body of literature that discusses the possible conflict between representative and participatory democracy.

Advocates of such participation argue that it invigorates civic life, improves communities and decision-making, deepens democratic traditions, balances community views and reinforces social and environmental equity.

On the other hand, critics argue that increased participation erodes the position of elected councillors and representatives, threatens clear lines of accountability and can entrench NIMBY attitudes.

As discussed in chapter 7.4 of this paper, the United Kingdom has introduced the *Sustainable Communities Act 2007* to promote the economic, social and environmental sustainability of local communities.⁶⁰⁷ While the Act allows local citizens to promote sustainability in their communities, it also acknowledges that the power of central government and politicians is necessary to implement these ideas.⁶⁰⁸ The Act does this by requiring the Secretary of State to invite local councils to make proposals as to how the government can assist in “promoting the sustainability of the local communities.”⁶⁰⁹ Local councils are required to consult a panel of local representatives before making the proposal.⁶¹⁰

The Act is premised on the idea that local people will usually know how best to promote sustainability in their community. It was introduced because the existing regime was thought to be a “top down programme which did little to

encourage community involvement or ownership of proposals.”⁶¹¹ Many people felt they had no influence in relation to the decisions affecting their lives. In response to these concerns, the Act introduces measures to inform citizens about accessing services, consult on local policies and involve citizens directly in services.⁶¹²

The Act allows for any citizen to submit a proposal via a local council. A *panel of local citizens* decides which proposals to send on to a national selector body, which makes a further short-list. The proposals must follow basic criteria in order to be considered. Local councils must also give notice of their intention to make recommendations and invite suggestions from residents in its area on measures necessary to promote the sustainability of the local community.⁶¹³

The Act was introduced as a Private Members Bill by a Conservative Party member of parliament, Nick Hurd, after five years of campaigning by Local Works,⁶¹⁴ a coalition of over 100 national organisations.⁶¹⁵ The Act was passed through Parliament with the support of all major political parties.⁶¹⁶ After the first invitation for proposals in 2008, over 300 proposals were submitted by 100 local councils. The success of the first round of proposals resulted in parliament passing *the Sustainable Communities Act 2007 (Amendment) Act 2010* to ensure that the Act would provide for an ongoing process of invitations and proposals.⁶¹⁷

NIMBY

A concern about any public participation mechanism is that it could be hijacked by NIMBYs (**‘Not In My Back Yard’**). NIMBY is often used pejoratively to describe people who object to a development near them but are happy for it to move into someone else’s neighbourhood. However, not all NIMBYs are concerned about the proposal only if it directly affects them. Some people described as NIMBYs look at issues holistically, in the public interest and for the long-term benefit of the wider community. To demonise all critics of a proposal as NIMBYs denies their right to speak out on issues of concern, even if a private interest is at stake. This is especially so when the planning process is difficult to navigate or people are excluded for other reasons.

6.3 Australian examples of political involvement in collaborative mechanisms

Unlike the USA, Australia does not have a tradition of legislation sponsored by individual politicians. Few private member bills are successful in Australian parliaments. Strong party discipline ensures that governments dominate and control policy and legislative processes.

Ministers traditionally have responsibility for placing issues on the public policy agenda and for shepherding policy development through the processes of government and parliament.

There are a number of Australian institutions outlined in this paper, such as the Murray Darling Basin Ministerial Council, that have been established under direct ministerial control to deal with specific resource use issues. These are structural additions to the traditional departmental structures of a standing or temporary nature to focus on particular and potentially controversial issues. While involving or reporting directly to a minister, they also have a degree of perceived independence with wider input from non-government appointments to their boards.

NSW Healthy Rivers Commission

The *NSW Healthy Rivers Commission (HRC)* is another example of one these institutions that have been established under direct ministerial control to deal with specific land use issues. More information about *HRC* is contained in chapter 4.2 above.

The *HRC* reported directly to the Premier of NSW, who took the commission's reports to Cabinet. Each of the Commission's draft and final reports were published and the subject of Cabinet consideration. After Cabinet consideration, a Statement of Intent was published incorporating Cabinet's decisions on the report, inclusive of the commitments of the Government and the timetable for implementation. Audits of implementation of those decisions for the major river systems were also conducted and publicly reported on by the Commission. However, many of the reports took from 12 to 18 months to pass through the Cabinet process, both prolonging implementation and demonstrating the need for greater political understanding of the nature and impact of the reports.

The *HRC* conducted a total of 11 public inquiries over the eight years of its existence which covered all of the river systems and coastal lakes along the NSW coast. Some of the larger river systems were the subject of individual inquiries whilst others were grouped with neighbouring systems where there was a commonality of issues or communities. When conducting its inquiry into the Georges River in the Botany Bay System, the *HRC* circulated a discussion paper inviting submissions, held public hearings throughout the catchment, held public briefing sessions for the Commissioner to present their findings, met with institutional stakeholders, sought independent expert advice on particular technical issues and held specialist workshops with relevant stakeholders and agency operatives.

On completion of its tasks, the *HRC* was replaced by the Natural Resources Commission (*NRC*). More information about the *NRC* is contained in chapter 4.2 above.

Darling Downs Regional Plan

In general terms, under s43 of the SPA, the regional planning Minister for the region must appoint a regional planning committee comprised of a Minister or a mayor or councillor of a local government of the region or a person who has the appropriate qualifications, experience or standing to be a member of the committee.

The Darling Downs Regional Planning Committee comprised of a range of stakeholders including three State ministers, four local members of parliament and six local government councillors.

This example includes politicians in a deliberative community consultation process. While the process itself is not open, it has produced a public document, the Darling Downs Regional Plan, which enables the community to understand the future direction for the Darling Downs region.



7. A model for Queensland?

7.1 Introduction

Overall, the aim of this study is to present ideas to ensure the wise use of all natural resources for our long-term well-being. Acknowledging the developing law as outlined in chapter 2 and the problems with the regulatory framework discussed in chapter 3, and drawing on the ideas and examples canvassed in chapters 4, 5 and 6, this chapter considers whether a new model could give form to a flexible, speedy and inclusive public participation structure in Queensland that would address some of the concerns raised by the rapid escalation of resource activity.

The focus of this chapter is on introducing a framework for public participation in strategic and regional assessment and planning of land and resource use at all stages of the policy and development process. With an increasingly complex system for the regulation, management and planning of land and resource use, a mechanism to facilitate collaborations of interested citizens, politicians and scientists would inject accessible information and transparency into the public debate.

A balanced inclusive approach would recognise that:

- a range of perspectives will usually lead to better decisions;
- good decision-making is reliant on good information;
- it is in every citizen's and group's interest to work together and to play a part in the solutions needed, as it will save effort, save money and ensure long-term economic and environmental sustainability;
- public input at a strategic level is just as important as at the local or project level; and
- the exclusion of stakeholders will reduce acceptance and prolong disputation.

Much of the literature points to the failure of 'top-down' approaches in solving land use and environmental problems. Brunner and Lynch propose instead, in relation to climate change, 'adaptive governance', which encourages a participatory approach supporting community solutions "which can be integrated into policies advancing the common interests of various communities on contested issues".⁶¹⁸

While ultimately the government has the authority and power to implement solutions to the problems and conflicts we face, the inclusion of regional and industry-wide perspectives based on greater shared knowledge in a structured and collaborative way cannot but help to improve decision-making.

The question of how participation can be made more effective and 'meaningful' has been the subject of research and debate for many years. Meaningful public participation is often described as a deliberative process whereby stakeholders engage in discourse about what outcomes best serve the common good of the affected community.⁶¹⁹

Burton argues that the success of a participation mechanism can only be judged when the following questions are carefully considered: Who should participate? In what type of decisions? On what basis?⁶²⁰

This paper has shown that Queensland has not explored the full possibilities available through structured collaborative and participatory governance models at a strategic level, and the longer such attempts are delayed, the harder and more costly restorative action will be, as exemplified by the Californian CALFED process (see Chapter 5, above).

Few of the participatory examples outlined in this study have any legislative backing. The ideas discussed here would give a legislative base for a flexible structure to determine terms of reference, member selection, triggering, timing, resourcing, decision-making, reporting and

evaluation. These issues are discussed below. While legislation would give structure to such community participatory aspirations, it should not be so prescriptive as to stifle innovation and creativity. The framework should be ready to pick up community insight to meet the increasing pressures and challenges that are faced.

Question for discussion

Q7.1: Would a legislative participatory framework that enshrines a mechanism, participant selection and processes etc. help us better deal with uncertainty, complexity and emerging issues as presented by rapid resource development in Queensland?

7.2 What should a participatory model look like?

Based on the examples discussed throughout this paper, a mechanism that involves members of the community in exploring strategic planning, joint fact finding, dispute resolution and community restoration should have the following characteristics:

- involve a representative range of informed and interested people, including politicians, through an inclusive and open selection process;
- incorporate the best available knowledge and information;
- have clear working principles and guidelines and processes agreed by the members to ensure greater deliberation and to permit the debating of values and views and reaching decisions as far as possible on a consensus basis;
- has participants who are respectful of others' views and who are willing to compromise;
- a focus on producing better policy, planning and achievable outcomes;
- is timely;
- is properly resourced but cost-effective;
- is taken seriously by government and opposition and trusted by the community;
- is supported, coordinated and supervised centrally to ensure accountability, transparency and quality;
- incorporates wider views through constituency consultation;
- conducts its discussions privately but reports openly;
- is facilitated to understand its goals and to work cooperatively towards them;
- uses pre-prepared high quality papers including data impacts as the basis of discussion;
- provides information, views and reasoning directly to the appropriate decision-maker; and
- is evaluated to ensure that identified problems are acknowledged and rectified for future use.

While such a process will potentially:

- engender greater social cohesion;
- lead to a more informed community;
- lead to better informed decision-makers;
- result in better decision-making, policy and legislation;

it would also satisfy an increasing community aspiration to participate deliberatively in the decisions that affect them.

Questions for discussion

Q7.2: Some features of a participatory model for strategic policy development and decision-making are listed in chapter 7.2. Are these appropriate? Can you suggest others?

7.3 What types of issues should such a mechanism apply to?

If it is accepted that there should be more structured community participation, the next question to be asked is at what level and in what kind of issue. The research suggests there is a place for greater public participation in strategic policy development and planning and how and when that participation is structured is essential for public confidence in it.

There are many potential uses of such a model. It could work effectively for example in dealing with the long-term viability of an industry, its impact on all stakeholders, an area or region or a particular issue such as whether a plan is working in light of new information or changes.

The model could also fulfil a strategic assessment role. For example, it could respond to a discrete issue such as water (water quality; flooding and floodplain protection; aquifer health and protection; supplies for drinking, irrigation and industrial use; river flows, dams and riparian protection; aquatic fauna and vegetation health etc.), an issue of major interest to many stakeholders across Queensland, particularly where it intersects with a spike in development activity, such as CSG.

It could also assist with the tail end of a resource industry. The boom and bust nature of our economy is rarely well-managed. As the mining industry suffers from a slowdown in the demands for our resources from Asia, a number of big miners are withdrawing from less profitable ventures. While there is industry confidence that this slowdown is temporary, no-one has a certain picture of what the future might hold. When a mine, often the biggest employer in a town and region closes, there are significant impacts on the community. These impacts are rarely appreciated when the operation commences, the demand is high and the business booming. The recent winding down of mining in the Queensland towns of Dysart⁶²¹ and Collinsville are examples of how communities can be severely impacted by such changes.

Therefore, the types of issues that this process might help government include:

- planning and assessment, early in resource development at a strategic, regional and sub-regional level;
- when impacts of development become known in the course of a development or industry-wide;
- resource development disputes,
- project/industry de-commissioning and restoration, or
- a combination of these.

Transparent terms of reference are vital for public confidence. If the terms are too narrow and a predetermined outcome is invited, then more creative and innovative solutions to competing interests will be unachievable. Discussion and innovation should be encouraged but it is equally vital that the process is time limited and task oriented, although able to be re-instigated when necessary.

Questions for discussion

Q7.3: What current or emerging resource and land use issues do you think would be suitable for a strategic level public participation mechanism to help resolve competing values and interests?

Q7.4: Is it politically realistic to expect that a government would be willing to give a participatory structure a broad value reference to consider?

7.4 Who would participate and how would they be selected?

As a growing number of people want a say in the issues and decisions that affect them, and believe that their elected representatives are unable to represent them with sufficient depth in these increasingly complex issues, there needs to be ways to determine who is interested, who is affected, and who should represent them in an engagement.

In the CSG issue, it is relatively easy to determine who would be appropriate stakeholders: farmers and farmers' organisations, miners and miners' organisations, conservationists and environmental organisations, Indigenous representatives, federal, state and local governments, community and business groups.

While there are also likely to be some interests in common, these stakeholders have particular interests at stake:

- farmers' land will be accessed and used by the miners, impacting on farmers' livelihood, long-term use, land values and amenity;
- farmers groups have an interest in their members' welfare, profitability and farming sustainability;
- miners have commercial interests;
- miners' groups have an interest in the viability and profitability of their industry;
- conservationists and environment groups have an interest in the protection and conservation of biodiversity and habitat, and environmental and community health;
- Indigenous people have an interest in cultural protection, economic development and community development;
- community and business groups have the health and welfare of their community and social and commercial security;
- researchers have an association, knowledge and expertise in the area;
- federal, state and local governments have a range of interests from food and energy security and economic development to environment protection, social diversity, employment, amenity and community harmony; and
- governments can also have a political self-interest, such as the need to obtain revenue to reduce debt, to appear to act decisively and to represent their political constituents.

It is often out of a clash of interests and views that new ideas are found and compromise can frequently lead to benefits for all parties.

Stakeholder selection

Burton notes:

*"In situations where it is more important that issues are explored in depth only a few will be able to participate and the key question becomes which method of selection should we choose? We need to remember also the difference between selecting people because they are representative in some way of a larger population and selecting people to act as representatives of others, with all the obligations of communication and accountability that go with it."*⁶²²

For there to be public trust and confidence in these processes, stakeholder selection must be broad based, not weighted in favour of any particular perspective, even a perspective within a stakeholder group. For example, where a river system is under consideration, the agricultural perspective has to be represented by landholders at the top and bottom of the river system.

An essential aspect of stakeholder selection is that stakeholders must not only have knowledge and experience. They must also be selected by their willingness to change their views in the face of persuasive new knowledge and evidence. Those who are inflexible and unable to compromise where the weight of evidence is against their position do their case a disservice and prevent a solution in everyone's interests.

All participants' views should be open and given an opportunity to be justified. There should be no need for government to groom particular members when selecting participants. Incorporating a range of stakeholders and views is critical to the success of and public confidence in a participatory process.

While the Queensland Government appears to be trying to facilitate dialogue between stakeholders and with assessment and planning authorities, it has failed to dampen a range of local and regional concerns by excluding some key stakeholders.

Stakeholder selection can be determined by:

- being affected by and having an interest in the issue, whether direct or indirect and the level of that interest;
- the legitimacy of their interest – associated by history, prior involvement, geography, locality or knowledge;
- having credibility and visibility, a position of leadership in an organisation or support from and acknowledgment by others;
- a preparedness to consult with its wider constituency to bring a broad perspective to the table; and
- a willingness and resources to participate in meaningful discussion and a willingness to consider compromise in good faith.

While community 'representatives' may be 'unelected', any challenge to their legitimacy can be counter-balanced by:

- being held to account for their contribution through open processes;
- the ability of other mechanisms (court challenges and direct lobbying for example) to ensure that anyone who wants a say can have a say to correct inaccuracies or misrepresentations; and
- the ultimate decision-making power and authority of government to accept other views and decide accordingly.

Stakeholders can represent a public or private interest or a mix of public and private interests. Some stakeholders represent the broader public interest, for the benefit only of the common good, and seek no benefit for themselves. Others can represent their own interests purely or act in their own commercial interest while hoping to increase the wellbeing of the broader community or section of the community. In stakeholder selection, it is important that the interests the stakeholder represents are clear and stated.

There are examples of stakeholder selection being given a legislative structure. In the United Kingdom, the *Sustainable Communities Act 2007* was introduced to promote the economic, social and environmental sustainability of local communities (see Chapter 6, above).⁶²³

The Act is not prescriptive about the panels and only requires that there is at least one panel that is made up of representatives of local citizens.⁶²⁴ This might be a newly established panel, an existing local consultative panel or a forum which meets the requirements of the Act. Under section 3(1)(d) of the Act, the panel must take reasonable steps to obtain the views of citizens from a wide range of backgrounds including young people, ethnic minorities, people with disabilities, persons over sixty years of age and people with lower incomes. Section 3(2) (a) requires that the panel must include as far as reasonable members of these categories.

The Act is complemented by the *Local Government and Public Involvement in Health Act 2007 (UK)* which amends the *Local Government Act 1999* to place a specific duty on local authorities to involve citizens in the exercise of its function, where it considers appropriate.⁶³⁰ The amendments to the *Local Government Act 1999* have been criticised for only prescribing minimum standards for citizen involvement and for not providing how the consultation should take place.⁶³¹ Nonetheless, these type of standards are a positive step towards setting parameters for citizen involvement in government decision making.

Involvement of politicians

As outlined in chapter 6, it is uncommon for government ministers to do more than ask a committee or panel to report to them or for politicians generally to consult other than through informal meetings or through their role on a parliamentary committee. This study has referred to commentary from a range of sources of the importance of direct political involvement in participatory mechanisms. It is important for politicians to hear the views of all stakeholders, not just their traditional affiliates and supporters. It is also important this occurs in a structured environment, face to face.

By including local councillors and state politicians, the process is also potentially a bulwark against corruption as all participants will be aware of the basis of participants' views and the evidence upon which contributions are made.

The presence of politicians is also important as these processes should also be an insight into the values behind participants' views. It is important that politicians and governments understand the values that lie behind the debate, not just the views of the participants. If stakeholder selection and meeting procedures are inclusive and transparent, then the process should be a fair one.

It is unlikely that ministers would have the time to participate in a long process, but their participation should occur as far as possible. The inclusion of three ministers in the Darling Downs Regional Planning Committee shows that ministerial involvement can occur, at least in a time limited process. To be effective and inclusive, appropriate members of parliament from the governing party and opposition should actively participate. If politicians take the process seriously, openly and collaboratively, then other stakeholders will likely follow suit. In such a climate, disputation is likely to be minimised. The involvement of politicians would also give participants confidence that their views have been heard.

“Integral theory”

Theoretical perspectives may assist in the formulation of a formal participatory structure. For example, integral theory proposes that all things can be considered and understood from multiple perspectives and it is only when these perspectives are integrated that a comprehensive appreciation of an issue can be achieved.⁶²⁵ Proponents of integral theory have developed a number of practical models and frameworks aimed at ensuring that all perspectives are integrated to allow a comprehensive appreciation of an issue. These models have already been applied to several land use conflicts. For example, in the Slocan Valley in British Columbia, an integral approach was taken to a community forest project.⁶²⁶ There were historical tensions between a number of stakeholders such as loggers, miners, farmers and environmentalists and the government had tried several times to find a workable solution.⁶²⁷ An integral theory approach recognised and honoured the diverse perspectives about the forest and that any long-term solution would have to integrate the many conflicting views.⁶²⁸ This approach resulted in a solution which was supported by the majority of the stakeholders.⁶²⁹

Inclusion of expert scientific knowledge

The climate change debate has exposed the disregard and even hostility some people have for science. This is perhaps in part because it is complex and not readily understood by people without a scientific background. It also appears to be the result of the politicisation of science. This underscores the importance of good science being available, but in a form that is accessible to interested participants.

There are also many grey areas in science, which require considerable research and analysis, often without reaching a conclusive view. It requires imagination and hard discussion to reach an acceptable shared understanding.

The research shows that scientists have to be part of the discussion, not an adjunct to it where they are only present to provide commentary on points of uncertainty or fill knowledge gaps. The science should enable participants to understand what is being considered and should be open to informed debate, as scientific views can differ. This is an essential precursor to any attempt to resolve competing values and positions.

High-quality information is critical to full and proper deliberation. While there are many sources of good information, the inclusion of scientific discipline, knowledge and experience, tempered with good quality local knowledge, is the best way to ensure that appropriate decisions are made.

The courts have developed rules for the presentation of expert evidence, both by the parties themselves and court appointed experts. While court rules are technical and prescriptive, they may give guidance in developing a less formal methodology for including scientific evidence into a participatory forum.

It is also critical that all stakeholders, including politicians, have direct contact with scientists and other local knowledge sources, so that all participants can question and challenge their assumptions.

Questions for discussion

Q7.5: How would you ensure that the participation structure was representative of all interested stakeholders?

Q7.6: Is it realistic to expect a politician to openly participate in such a process?

Q7.7: Would direct involvement of politicians improve decision-making and deepen our democratic processes or erode our democratic traditions and threaten lines of accountability?

Q7.8: Could theoretical perspectives such as integral theory inform the decision-making process? What other theoretical perspectives might be instructive?

7.5 How would the mechanism be triggered?

As shown earlier, some consultative mechanisms are triggered by the proponent, landholder or government. The trigger for higher policy and strategic deliberations should be retained by government to give it public legitimacy. However, if a clear structure is in place, then community pressure should be enough to trigger a political response. A participation framework could include specific indicators to be reached for the legislative trigger to be invoked.

Question for discussion

Q7.9: Do you have suggestions for triggering a participation mechanism?

7.6 How much time should it take?

A possible concern of some stakeholders could be the time such a process would take. Proponents want to get their projects off the ground quickly. Stakeholders may fear that a new community participation model would prolong project development, increase costs and impact negatively on profitability.

However, as the timescale in **Figure 2** shows, with CSG there has been a considerable period from conception to the start of actual mining, often due to catch up regulation, piecemeal negotiations with existing individual stakeholders, the complexity of the EIS, and governments having to make decisions to approve or not approve a project in an atmosphere of conflict between competing groups. If a public participation mechanism is considered appropriate for balancing social, environmental and economic interests at a strategic level, the process would be unlikely to stymie individual projects and, particularly if commenced early in the planning or approval process may speed up decision-making and increase the likelihood of wide public acceptance of the outcome.

A requirement could be built into the process that steps are taken at appropriate times. The NSW Healthy Rivers Commission, for example, was less demanding on commercial and community participants in the long-term (see chapter 4, above). Many of the examples outlined in this paper took considerable time to find solutions to the problems they were established to fix. But ultimately, a clear structure could also include a timetable for reporting and for the government to respond.

A process could be timed to coincide with non-sitting terms of political representatives and spaced so that all participants could participate without too much disruption to their normal lives. This would apply equally to citizens, groups and proponent representatives, giving them sufficient time to prepare and consult between stages in the process.

A mechanism for collecting and translating timely scientific and other information could also be part of the structure.

If the structure is suitable, particularly if there is a flexible system for gathering and agreeing on the science, for resourcing community participants, for setting clear agendas and timelines, and for properly informing and engaging participants, then project approval processes should be more streamlined.

Question for discussion

Q7.10: Do you think a structured participatory mechanism could occur in a timely way?

7.7 How would such a mechanism be funded?

For proponents, the cost of their participation would be factored into the cost of the development. The general experience of participatory bodies is that most participants see representation as a public duty.

However, a process that involves interested citizens can be exhausting and costly to them and thus limit their ability to fully contribute, particularly if it involves considerable time.

Consideration would therefore need to be given to providing financial support for some participants in order to promote broad-based public participation.

If the remuneration was too high, some participants might only participate for the money. If too low, it would not compensate people for their time. The purpose of adequate recompense is to draw interest from all relevant stakeholders and secure the best participants.

Concerns that such a process would be too costly also have to be considered. However, it should not be rejected without trial and evaluation. There are many existing committees, panels and consultations that people willingly participate in. A more structured program may eliminate duplication and waste.

The *State Development and Public Works Organisation Act 1975* (**SDPWO Act**) allows the Coordinator-General to recover from the CSG company the reasonable cost of obtaining advice or services that the Coordinator-General considers is necessary to decide an application or take action relating to a coordinated project.⁶³² For example, the Coordinator-General may “seek to recover from the proponent the costs associated with commissioning an independent report into a particular aspect of the project proposal that the Coordinator-General considers is necessary to evaluate the project’s Environmental Impact Statement.”⁶³³ However, the SDPWO Act only applies to coordinated projects.

Any legislative framework discussed here could include a similar funding mechanism to require a company or group of companies and to contribute to the cost of a participatory process.

Most mining operations have sponsorship and donations programs to financially support community activities such as schools, clubs, societies, community events and natural resource management. In the presence of multiple mining operations or in partnership with other industries or organisations an opportunity exists to focus and coordinate these investments to target community and environment needs and generate the best value for each spend through pooling resources.⁶³⁴

In principle, pooling contributions could work to fund a participatory mechanism and the associated administrative costs.

In addition or alternatively, a surcharge on the royalties that are paid by mining companies or a percentage of royalties or other development contributions could be earmarked for a fund to operate the formal consultation structure. This special fund could also be seeded by government and other private funding to facilitate collaborative research for emerging industries.

Any supporting structures would be relatively cheap to run. For example, a small agency could be established to coordinate, support and facilitate the process and broker the necessary scientific expertise from existing institutions such as the CSIRO and universities.

Question for discussion

Q7.11: Do you have suggestions for funding information gathering and participatory processes?

Q7.12: Should participants in a participatory mechanism be remunerated and if so, at what level?

7.8 How would it report?

For participants to feel that their contribution is worthwhile, they would want to know that the right person will receive the report of their deliberations. To achieve this, a report prepared

through the process would have to be provided directly to the relevant minister, or if the involvement of citizens is given its due recognition, to the premier, particularly if another minister participates. It would be necessary for the efficacy of, and public confidence in, such a scheme for the views of the participants to have direct access to the person who would have the power and gravitas to implement their suggestions. They would want to know why their recommendations have been rejected in favour of others.

Importantly, if other politicians have been involved directly in the process, the government and parliament will have access to rich information from and of the process.

Under the Queensland Legislative Assembly's scrutiny of legislation process, the relevant Minister is required to write a response to the Committee's report. A similar process could be adopted whereby the relevant minister would publish the group's report and minister's response on a separate government website.

Question for discussion

Q7.13: To whom should a participatory mechanism report?

Q7.14: Do you have suggestions for how a participatory mechanism would report its deliberations to government?

Q7.15: Should the government be required to formally respond to the participatory mechanisms report?

7.9 Evaluation

Beirle argues that the effectiveness of any participation mechanism can be judged by assessing the mechanism against a series of social goals, such as educating and informing the public, incorporating public values into decision-making and improving the substantive quality of decisions.⁶³⁵ Beirle identifies a number of issues with public participation mechanisms including the fact that the literature does not support the idea that effective processes necessarily lead to better outcomes and that, even when useful and valuable mechanisms exist for involving the community in decision-making, some goals will still be difficult to achieve.⁶³⁶ However, he ultimately concludes that:

... having a framework for evaluating participation mechanisms allows us to go beyond seeking ways to simply increase public involvement and helps us tackle unanswered questions such as when, how and why it should be used.⁶³⁷

The importance of defining a process for evaluating the effectiveness of governance mechanisms from the outset is highlighted by Burton:

Participation matters, but we still do not know as much as we should and could about how it matters...., but unless we are able to test more systematically the claims made for participation, we will have to rely on rhetoric more than evidence in making our judgement.⁶³⁸

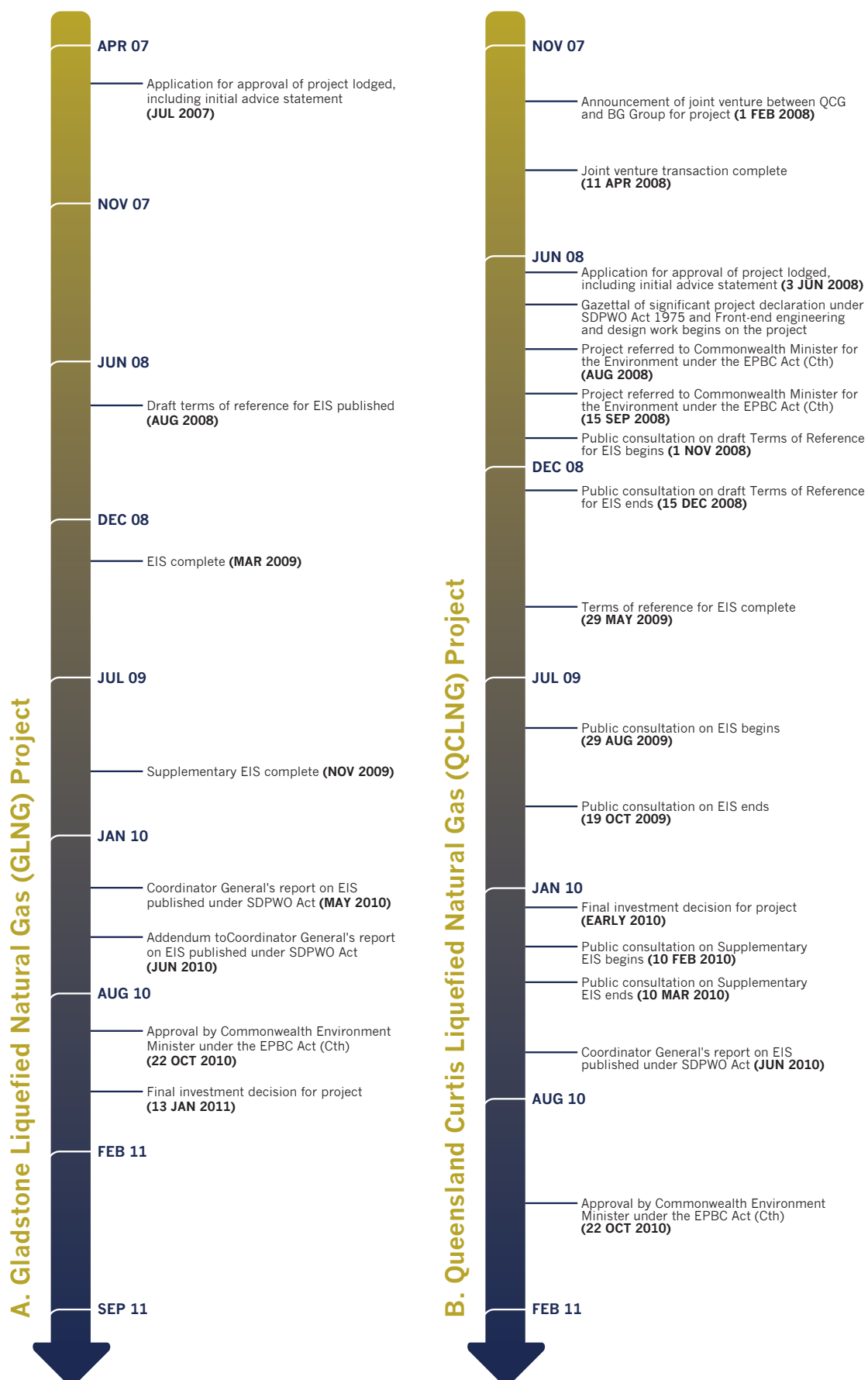
If a structured and resourced mechanism that involves the community is used, it is also more likely that a structured process can be used to evaluate its effectiveness. The process should be determined in consultation with stakeholders and should be agreed on early in the process.

In 7.2 above, the importance of a public participation mechanism having clear goals and being guided by pre-determined principles and guidelines was stressed. Armed with these goals, questions can also be determined and information gathered throughout the process to enable effective evaluation at the end of the process.

7.10 Conclusion

Of all the public participation examples outlined in this study, none have been underpinned by a formal common legislative structure for triggering, selecting representation, producing and considering information, organising and structuring discussion, reporting or evaluation. Most of the attempts to increase public participation in strategic or regional level thinking have not resulted in any long-term or permanent structures to facilitate learning and development. There are many competing and emerging pressures on our communities flowing from many developments that would be amenable to an experiment in more structured collaborative and participatory land use assessment and planning in Queensland.

Figure 2 Comparative timelines for major CSG projects in Queensland. All legislation referred to in these timelines is Queensland legislation unless otherwise indicated as Commonwealth (Cth) legislation.



Appendix 1 – List of questions for discussion

Improving the EIS

Q4.1: Is the EIS process an effective tool for understanding the impact and measuring the risks of a development proposal?

Q4.2: Is the EIS process an effective mechanism for incorporating community views and knowledge?

Q4.3: Could the EIS process be improved to include more public involvement in the initial stages of a development, without significantly affecting the project's commerciality?

Q4.4: Could an EIS be conducted before a final investment decision is made for a development? Why or why not?

Q4.5: Who should be responsible for undertaking an EIS and could the EIS be conducted more efficiently and effectively by an independent body or agency rather than the proponent?

Q4.6: Could a model involving early consultation and capacity building in the 'review' stage of an EIS work in Australia?

Q4.7: Do you have any other comments about improving the effectiveness of the EIS process?

Managing risk

Q4.8: Has the precautionary approach been adequately considered by government when granting approvals for CSG mining?

Q4.9: Is it realistic to adopt a precautionary approach if the over-arching government policy is to promote economic development and growth?

Q4.10: Is the use of an adaptive management regime appropriate for all resource development proposals?

Q4.11: Is the Australian fisheries model a good example of how the precautionary principle can be applied to other developments/industries within an adaptive management framework?

Q4.12: Would prescribing clear stakeholder engagement principles and processes in conjunction with adaptive management, be a more workable model for resource developments?

Incorporating science

Q4.13: Are the existing mechanisms for incorporating scientific and other knowledge into decision-making adequate in Queensland?

Q4.14: Do the existing public consultation mechanisms allow sufficient opportunities for people to understand the nature and extent of development proposals and their impacts on communities?

Q4.15: Is a joint fact finding model appropriate for development proposals in Queensland?

Q4.16: What features should a governance mechanism have to ensure that all applicable research and information is delivered effectively to the public and decision-makers?

Q4.17: Should an independent commission or similar body with the power to collect and disseminate information be established in Queensland to gather and produce independent and credible scientific information and advice in relation to resource developments like CSG? Who would pay for such a body? Could existing agencies such as the CSIRO effectively fill this role?

Q4.18: Could crowd science be used to ensure that landowners and other members of the public can incorporate their local knowledge into the decision-making process for CSG projects? If so, how and what technology could be used to facilitate it?

Managing direct and cumulative impacts

Q4.19: Is the current process for assessing and managing cumulative impacts adequate?

Q4.20: Is it realistic to expect that development proponents can adequately assess and report on cumulative impacts beyond the area and impacts of their own development?

Q4.21: Should the Coordinator-General consider and manage the cumulative impacts of development proposals in the public interest?

Q4.22: If not the Coordinator-General, who should gather cumulative impact data and report to decision-makers?

Q4.23: Should the CSG industry play a greater role in cumulative impact assessment by predicting prospective resource development for a region?

Q4.24: Is the Alberta, Canada Oil Sands process a model that Queensland should adopt?

Q 4.25: Is there a better way to undertake cumulative impact assessment in relation to new developments, and if so, how should it be funded?

Q4.26: Could a community wellbeing indicators model be adapted for use in the assessment of the impacts of CSG? If so, how?

Q4.27: What have been/are the direct impacts of CSG mining on you, your family, your business or your community?

Q4.28: What would be the best way to ensure full public consideration of impacts over the life of a project?

Community involvement and public participation

Q5.1: Have you been consulted by a CSG company in relation to a CSG proposal? If so, do you think the process enabled your views to be seriously taken into consideration?

Q5.2: Have the committees or working groups established as part of the CSG industry provided enough information for you to understand how it affects you and your community?

Q5.3: Could a participatory budgeting model be incorporated into the governance framework in Queensland to ensure that local communities have a say in how CSG royalties earned by the Queensland government are spent?

Q5.4: Could any of the models discussed in this paper better protect community and environmental interests and engage the community in project developments (such as the US Habitat Conservation Plan, citizen jury or Delbessie Agreement model)?

Q5.5: Would a formal large scale Alternative Dispute Resolution (ADR) process assist in developing a more comprehensive approach to land use conflicts?

Q5.6: Is the Queensland Government's new regional planning process inclusive and representative of community views?

Q5.7: Should the new regional planning process include community participation on an on-going basis?

Q5.8: Does the new regional planning process adequately link with assessment processes?

Q5.9: Is the consultation process sufficient to incorporate community views adequately into long-term planning of developing industries like CSG?

Q5.10: Table 1 below invites comment on the effectiveness of current participatory mechanisms.

Table 2: Goals and criteria for evaluating public participation mechanisms.

Please insert any comments that you wish to make in the table below. Think about what level of assessment/decision making your comments apply (whether existing or proposed stage). For example, do your comments apply to project specific evaluation, preliminary assessment, regional assessment of cumulative impacts or long-term planning?

Goals and criteria	Comments	Level
<i>Educating and informing the public</i> Has the public been provided sufficient information to contribute to deliberations?		
<i>Incorporating public values into decision-making</i> Did the public processes you contributed to, provide an opportunity for people to express their underlying values? Was information from the participation process used to inform decisions? In your view, did it have an impact?		
<i>Improving the substantive quality of decisions</i> Did the participation mechanism improve participant satisfaction? Were new alternatives generated? Were new facts revealed?		
<i>Increasing trust in institutions</i> Do you have confidence in the consultation mechanisms and decision-making processes?		
<i>Reducing conflict</i> Did the participation mechanism reduce political or public opposition to the decision as reflected in testimony at public hearings or political debates? Did the decision lead to less litigation compared to the reasonable norm? Did the participation mechanism improve or worsen relationships with other stakeholders?		
<i>Achieving cost effectiveness</i> How much did the participation mechanism cost you in terms of		

time or money? What costs did the participation mechanism help to avoid?		
<i>Other</i>		

Q5.11: What other criteria or goals would you use to judge the adequacy or effectiveness of the current participatory mechanisms?

A model for Queensland

Q7.1: Would a legislative participatory framework that enshrines a mechanism, participant selection and processes etc. help us better deal with uncertainty, complexity and emerging issues as presented by rapid resource development in Queensland?

Q7.2: Some features of a participatory model for strategic policy development and decision-making are listed in chapter 7.2. Are these appropriate? Can you suggest others?

Q7.3: What current or emerging resource and land use issues do you think would be suitable for a strategic level public participation mechanism to help resolve competing values and interests?

Q7.4: Is it politically realistic to expect that a government would be willing to give a participatory structure a broad value reference to consider?

Q7.5: How would you ensure that the participatory structure was representative of all interested stakeholders?

Q7.6: Is it realistic to expect a politician to openly participate in such a process?

Q7.7: Would direct involvement of politicians improve decision-making and deepen our democratic processes or erode our democratic traditions and threaten lines of accountability?

Q7.8: Could theoretical perspectives such as integral theory inform the decision-making process? What other theoretical perspectives might be instructive?

Q7.9: Do you have suggestions for triggering a participation mechanism?

Q7.10: Do you think a structured participatory mechanism could occur in a timely way?

Q7.11: Do you have suggestions for funding information gathering and participatory processes?

Q7.12: Should participants in a participatory mechanism be remunerated and if so, at what level?

Q7.13: To whom should a participatory mechanism report?

Q7.14: Do you have suggestions for how a participatory mechanism would report its deliberations to government?

Q7.15: Should the government be required to formally respond a participatory mechanisms report?

Appendix 2 - List of acronyms

ADR	Alternative Dispute Resolution
AFMA	The Australian Fisheries Management Authority
AGL	AGL Energy
APPEA	Australian Petroleum Production and Exploration Association Ltd
BTEX	Benzene, Toluene, Ethylbenzene and Xylenes
CAC	Community advisory committee
CALFED	California Bay Delta Authority
CCA	Conduct and compensation agreement
CMA	Cumulative management areas
CSG	Coal seam gas
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DEEDI	Former Queensland government Department of Employment, Economic Development and Industry
DEHP	Department of Environment and Heritage Protection
DERM	Former Queensland Department of Environment and Resource Management
DNRM	Queensland Department of Natural Resources and Mines
DSDPW	Queensland Department of State Development and Public Works
EARC	Electoral and Administrative Review Commission
EIA	Environmental impact assessment
EIS	Environmental impact statement
EMP	Environmental management plan
EPA	United States Environmental Protection Agency
EP Act	<i>Environmental Protection Act 1994 (Qld)</i>
EP Regulation	<i>Environmental Protection (Waste Management) Regulation 2000 (Qld)</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 2000 (Cth)</i>
ESD	Ecologically sustainable development
EU	European Union
FMA	<i>Fisheries Management Act 1991 (Cth)</i>
FJRA	Forest Jobs and Recreation Act
GAB	Great Artesian Basin
GISERA	Gas Industry Social and Environmental Research Alliance
GWP	Global warming potential
HCP	Habitat Conservation Plan
HRC	New South Wales Healthy Rivers Commission
LNG	Liquefied natural gas
LMA	Land Management Agreement
CSGEU	CSG Enforcement Unit
MDBA	Murray-Darling Basin Authority
MDB	Murray-Darling Basin
NIDR	United States National Institute for Dispute Resolution
NRC	New South Wales Natural Resources Commission
NWC	National Water Commission
PAC	New South Wales Planning Assessment Commission
PADR	Program on Alternative Dispute Resolution
P&G Act	<i>Petroleum and Gas (Production and Safety) Act 2004 (Qld)</i>
QGC	Queensland Gas Company
RAG	Resource Assessment Group
RRRC	Reef and Rainforest Research Centre
RWMP	Recycled water management plan
SCLA	<i>Strategic Cropping Land Act 2011 (Qld)</i>
SDPWO Act	<i>State Development and Public Works Organisation Act 1975 (Qld)</i>
SCL	Strategic cropping land
Water Act	<i>Water Act 2000 (Qld)</i>
Water Supply Act	<i>Water Supply (Safety and Reliability) Act 2007 (Qld)</i>

Appendix 3 - Glossary of terms

Collaboration

Working together to achieve agreed objectives.

Collaborative governance

The active involvement of stakeholders and interest groups in government decision-making.

Coordination

Managing the orderly integration of activities.

Governance

A complement to, not substitute for, good, fair and effective government.

Government

The institutions and processes with legitimate authority to make decisions in the public interest for people within a defined geographical area.

Interest group

An organisation formed to promote the common interests of its members.

Land use governance

The various structures, processes, rules and relationships aimed at assisting governing bodies and other stakeholders to manage and resolve competing land uses.

Participatory governance

The active involvement of citizens in government decision-making.

Public consultation

A process for communication between government and the community through which both become informed of the others views and intentions on a public policy issue.

Public interest

The interests of the community as a whole, rather than a private or special interest; the common good, which includes the interests of those who are marginalised, excluded or unable to participate.

Public participation

A process where individuals and groups have the opportunity to contribute to and participate in government decision-making.

Public policy

The broad framework of ideas and values within which decisions are taken and implemented by government.

Stakeholder

A person or group that is or may be affected by or has an interest in an issue or a decision. Stakeholders can be just as likely to advocate for change as for maintenance of the status quo.

Strategic assessment and planning

Strategic assessment and planning can occur at the state, issue, industry, policy and program levels.

Regional assessment and planning

Regional assessment and planning occurs at the regional, industry province or catchment levels.

Endnotes

- ¹ See Davidson, D.J., and Frickel, S., 'Understanding Environmental Governance: A Critical Review,' 17(4) *Organisation and Environment*, 2004, p. 471 and Kimani, N.M., 'Comment: Participatory Aspirations of Environmental Governance in East Africa,' *Law, Environment and Development Journal*, 2010, p. 204, Available at <http://www.lead-journal.org/content/10200.pdf>
- ² Queensland government, 'Your questions answered: coal seam gas and liquefied natural gas in Queensland,' Undated and Tresscox Lawyers, 'Coal Seam Gas Water – Part 1: Solutions to Queensland's Water Crisis?' *Water Newsletter* December 2008, p. 3
- ³ Tresscox Lawyers, 'Coal Seam Gas Water – Part 1: Solutions to Queensland's Water Crisis?' *Water Newsletter* December 2008, p. 3
- ⁴ Tresscox Lawyers, 'Coal Seam Gas Water – Part 1: Solutions to Queensland's Water Crisis?' *Water Newsletter* December 2008, p. 3
- ⁵ Tresscox Lawyers, 'Coal Seam Gas Water – Part 1: Solutions to Queensland's Water Crisis?' *Water Newsletter* December 2008, p. 3
- ⁶ Commonwealth Scientific and Industrial Research Organisation (CSIRO), 'Coal Seam Gas Factsheets 1-8,' July and August 2011, Available at http://www.apf.gov.au/senate/committee/rat_ctte/mdb/submissions.
- ⁷ Sheriff, G., Wilson B., and Steed, J., 'ESG and the Energy Sector. Water Concerns: QLD Coal Seam Gas Developments Report Summary. Water, Water Everywhere... Few Drops to Drink?,' Asia Pacific Equity Research, J.P. Morgan Securities Australia Limited, 30 November 2010.
- ⁸ Rutovitz, J., Harris, S., Kuruppu, N., and Dunstan, C., 'Drilling Down. Coal Seam Gas: A background paper,' Prepared by the Institute for Sustainable Futures, University of Technology, Sydney, for the Sydney City Council, September 2011. See also the Senate, Rural Affairs and Transport References Committee, 'Management of the Murray Darling Basin, Interim Report: the impact of mining coal seam gas on the management of the Murray Darling Basin,' Commonwealth of Australia, November 2011
- ⁹ CSIRO, 'Coal Seam Gas Factsheets 1-8,' July and August 2011, Available at http://www.apf.gov.au/senate/committee/rat_ctte/mdb/submissions
- ¹⁰ Rutovitz, J., Harris, S., Kuruppu, N., and Dunstan, C., 'Drilling Down. Coal Seam Gas: A background paper,' Prepared by the Institute for Sustainable Futures, University of Technology, Sydney, for the Sydney City Council, September 2011
- ¹¹ CSIRO, 'Coal Seam Gas Factsheets 1-8,' July and August 2011, Available at http://www.apf.gov.au/senate/committee/rat_ctte/mdb/submissions and Australian Government, Department of Agriculture, Fisheries and Forestry, 'Australian Energy Resource Assessment,' Chapter 4 – Gas, 2009, Available http://adl.brs.gov.au/data/warehouse/pe_aera_d9aae_002/aeraCh_04.pdf
- ¹² Australian Government, Department of Agriculture, Fisheries and Forestry, 'Australian Energy Resource Assessment,' Chapter 4 – Gas, 2009, Available at http://adl.brs.gov.au/data/warehouse/pe_aera_d9aae_002/aeraCh_04.pdf
- ¹³ Rutovitz, J., Harris, S., Kuruppu, N., and Dunstan, C., 'Drilling Down. Coal Seam Gas: A background paper,' Appendix 7: List of companies actively involved in CSG activities in Australia, Prepared by the Institute for Sustainable Futures, University of Technology, Sydney, for the Sydney City Council, September 2011, p. 74
- ¹⁴ Sheriff, G., Wilson B., and Steed, J., 'ESG and the Energy Sector. Water Concerns: QLD Coal Seam Gas Developments Report Summary. Water, Water Everywhere... Few Drops to Drink?,' Asia Pacific Equity Research, J.P. Morgan Securities Australia Limited, 30 November 2010.
- ¹⁵ Rutovitz, J., Harris, S., Kuruppu, N., and Dunstan, C., 'Drilling Down. Coal Seam Gas: A background paper,' Prepared by the Institute for Sustainable Futures, University of Technology, Sydney, for the Sydney City Council, September 2011.
- ¹⁶ Rutovitz, J., Harris, S., Kuruppu, N., and Dunstan, C., 'Drilling Down. Coal Seam Gas: A background paper,' Prepared by the Institute for Sustainable Futures, University of Technology, Sydney, for the Sydney City Council, September 2011

¹⁷ Rutovitz, J., Harris, S., Kuruppu, N., and Dunstan, C., 'Drilling Down. Coal Seam Gas: A background paper,' Prepared by the Institute for Sustainable Futures, University of Technology, Sydney, for the Sydney City Council, September 2011

¹⁸ See for example, the work being undertaken by CRC Mining in relation to Tight Radius Drilling at www.crcmining.com.au.

¹⁹ Sheriff, G., Wilson B., and Steed, J., 'ESG and the Energy Sector. Water Concerns: QLD Coal Seam Gas Developments Report Summary. Water, Water Everywhere...Few Drops to Drink?,' Asia Pacific Equity Research, J.P. Morgan Securities Australia Limited, 30 November 2010

²⁰ See for example Queensland government, 'Your questions answered: coal seam gas and liquefied natural gas in Queensland,' Undated which argues that water and sand make up 99% of most fracking fluids in Queensland

²¹ Queensland Government, 'Hydraulic fracturing (fracking) in CSG wells' 2011, Available at <http://www.derm.qld.gov.au/factsheets/pdf/environment/en10.pdf> and Senate, Rural Affairs and Transport References Committee, 'Management of the Murray Darling Basin, Interim Report: the impact of mining coal seam gas on the management of the Murray Darling Basin,' Commonwealth of Australia, November 2011, p. 32.

²² Rutovitz, J., Harris, S., Kuruppu, N., and Dunstan, C., 'Drilling Down. Coal Seam Gas: A background paper,' Prepared by the Institute for Sustainable Futures, University of Technology, Sydney, for the Sydney City Council, September 2011. Note that more up to date data is available from the Department of Employment, Economic Development and Innovation website at <http://www.deedi.qld.gov.au/>.

²³ Queensland Government, 'Hydraulic fracturing (fracking) in CSG wells' 2011, Available at <http://www.derm.qld.gov.au/factsheets/pdf/environment/en10.pdf>

²⁴ Sheriff, G., Wilson B., and Steed, J., 'ESG and the Energy Sector. Water Concerns: QLD Coal Seam Gas Developments Report Summary. Water, Water Everywhere...Few Drops to Drink?,' Asia Pacific Equity Research, J.P. Morgan Securities Australia Limited, 30 November 2010.

²⁵ Queensland Government, 'Hydraulic fracturing (fracking) in CSG wells' 2011, Available at <http://www.derm.qld.gov.au/factsheets/pdf/environment/en10.pdf>.

²⁶ Department of Employment, Economic Development and Innovation (DEEDI), 'Queensland's Petroleum Exploration and Development Potential,' February 2011, Available at http://mines.industry.qld.gov.au/assets/petroleum-and-gas-pdf/q_petroleum_2011_1.pdf

²⁷ Fooles, G., 'Introduction to Mining and Petroleum Industries in Queensland and their regulation,' 26-30 September 2011, Clayton Utz

²⁸ Rutovitz, J., Harris, S., Kuruppu, N., and Dunstan, C., 'Drilling Down. Coal Seam Gas: A background paper,' Prepared by the Institute for Sustainable Futures, University of Technology, Sydney, for the Sydney City Council, September 2011, p. 35 and Department of Employment, Economic Development and Innovation, 2011 List of coal seam gas wells, downloaded from Department of Employment, Economic Development and Innovation, Interactive Resource and Tenure maps 20/9/2011, <http://mines.industry.qld.gov.au/geoscience/interactive-resource-tenuremaps.Htm>

²⁹ Australian Petroleum Production and Exploration Association, 'About CSG,' Available at <http://www.appea.com.au/csg/about-csg/what-is-csg.html> and Australian Government, Department of Agriculture, Fisheries and Forestry, 'Australian Energy Resource Assessment,' Chapter 4 – Gas, 2009, Available at http://adl.brs.gov.au/data/warehouse/pe_aera_d9aae_002/aeraCh_04.pdf

³⁰ CSG is converted to LNG prior to export because it is easier to transport long distances in liquid, rather than gas form. See Australian government, Department of Agriculture, Fisheries and Forestry, Australian Energy Resource Assessment, Chapter 4 – Gas, 2009

³¹ Corrs Chambers Westgarth Lawyers, 'Review of overlapping coal and coal seam gas tenure,' *Corrs in Brief*, March 2011, Available at <http://www.corrs.com.au/publications/corrs-in-brief/corrs-in-brief-review-of-overlapping-coal-and-coal-seam-gas-tenure/>

³² <http://www.qca.org.au/Investigations/CSG/>

³³ See Discussion Paper – Overlapping Tenures published on the Department of Natural Resources and Mines website at <http://mines.industry.qld.gov.au/assets/legislation-pdf/opl-discussion-paper.pdf>

³⁴ See Discussion Paper – Overlapping Tenures published on the Department of Natural Resources and Mines website at <http://mines.industry.qld.gov.au/assets/legislation-pdf/opl-discussion-paper.pdf>

³⁵ See Discussion Paper – Overlapping Tenures published on the Department of Natural Resources and Mines website at <http://mines.industry.qld.gov.au/assets/legislation-pdf/opl-discussion-paper.pdf>

³⁶ Coal Seam Gas Water management Policy 2012, Department of Environment and Heritage Protection, <http://www.ehp.qld.gov.au/management/non-mining/documents/csg-water-management-policy.pdf>

³⁷ Section 26 of the *Petroleum and Gas (Production and Safety) Act 2004* (Qld)

³⁸ See section 18 of the *Petroleum and Gas (Production and Safety) Act 2004* (Qld)

³⁹ Chapter 3 of the *Petroleum and Gas (Production and Safety) Act 2004* (Qld)

⁴⁰ Section 43 and 132 -134 of the *Petroleum and Gas (Production and Safety) Act 2004* (Qld)

⁴¹ See Chapters 2, 3,4 and 5 of the *Petroleum and Gas (Production and Safety) Act 2004* (Qld) for a full list of the mandatory conditions for resource authorities

⁴² Sections 65-71 of the *Petroleum and Gas (Production and Safety) Act 2004*(Qld)

⁴³ Section 145 and Schedule 10, Part 1 of the *Petroleum and Gas (Production and Safety) Regulation 2004* (Qld)

⁴⁴ Fooles, G., 'Introduction to Mining and Petroleum Industries in Queensland and their regulation,' 26-30 September 2011, Clayton Utz

⁴⁵ Access from the website of the former Department of Employment, Economic Development and Innovation (DEEDI) <http://www.deedi.qld.gov.au/cg/completed.html> in 2011. This site is no longer accessible.

⁴⁶ Section 10 of the *State Development and Public Works Organisation Act 1971* (Qld)

⁴⁷ Section 27 of the *State Development and Public Works Organisation Act 1971* (Qld)

⁴⁸ Allens Environment & Planning publication 'Significant projects and infrastructure facilities in Queensland – Proposed changes to the approval process and the powers of the Coordinator-General' November 2012 and section 27 of the *State Development and Public Works Organisation Act 1971* (Qld)

⁴⁹ Allens Environment & Planning publication 'Significant projects and infrastructure facilities in Queensland – Proposed changes to the approval process and the powers of the Coordinator-General' November 2012 and section 27AC of the *State Development and Public Works Organisation Act 1971* (Qld)

⁵⁰ See the recent amendments to the *State Development and Public Works Organisation Act 1971* (Qld) by the *Economic Development Act 2012* (Qld)

⁵¹ See the website of the Department of State Development and Public Works for the Social Impact Assessment Guideline, July 2013, <http://www.dsdip.qld.gov.au/assessments-and-approvals/social-impact-assessment.html>

⁵² Sections 47B – 49B of the *State Development and Public Works Organisation Act 1971* (Qld)

⁵³ Allens Environment & Planning publication 'Significant projects and infrastructure facilities in Queensland – Proposed changes to the approval process and the powers of the Coordinator-General' November 2012 and Section 35A of the *State Development and Public Works Organisation Act 1971* (Qld)

⁵⁴ Section 25B of the *State Development and Public Works Organisation Act 1971* (Qld)

⁵⁵ 'Coordinator-General's Guideline for Fees,' July 2012, <http://www.dsdip.qld.gov.au/resources/guideline/cg/guideline-for-fee-and-cost-recovery-for-infrastructure-facilities-of-significance.pdf>

-
- ⁵⁶ Section 26 of the *Environmental Protection Act 1994* (Qld), Reprint No. 11B and Schedule 5 of the *Environmental Protection Regulation 2009* (Qld), Reprint No. 2F
- ⁵⁷ Section 310C of the *Environmental Protection Act 1994* (Qld), Reprint No. 11B
- ⁵⁸ The former Department of Environment and Resource Management (DERM), 'Guideline for preparing an environmental management plan for coal seam gas activities,' www.ehp.qld.gov.au/management/, 31 March 2010
- ⁵⁹ Section 310E of the *Environmental Protection Act 1994* (Qld), Reprint No. 11B
- ⁶⁰ Section 310N of the *Environmental Protection Act 1994* (Qld), Reprint No. 11B
- ⁶¹ Section 310O of the *Environmental Protection Act 1994* (Qld), Reprint No. 11B
- ⁶² Section 310O of the *Environmental Protection Act 1994* (Qld), Reprint No. 11B
- ⁶³ Section 310N of the *Environmental Protection Act 1994* (Qld), Reprint No. 11B
- ⁶⁵ Section 310O of the *Environmental Protection Act 1994* (Qld), Reprint No. 11B
- ⁶⁵ Section 310O of the *Environmental Protection Act 1994* (Qld), Reprint No. 11B
- ⁶⁶ Compliance Plans can be accessed through the Department of Environment and Heritage Protection's (DEHP) website at <http://www.ehp.qld.gov.au/management/non-mining/enforcement-compliance.html>
- ⁶⁷ Section 3 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth)
- ⁶⁸ See generally Chapter 4, Part 7 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth)
- ⁶⁹ Section 185 of the *Petroleum and Gas (Production and Safety) Act 2004* (Qld)
- ⁷⁰ Section 186 of the *Petroleum and Gas (Production and Safety) Act 2004* (Qld)
- ⁷¹ Chapter 3, Part 3 of the *Water Act 2000* (Qld)
- ⁷² The former Department of Environment and Resource Management (DERM), 'Baseline Assessment Guideline' www.ehp.qld.gov.au, May 2011
- ⁷³ Chapter 3, Part 5, Division 3 of the *Water Act 2000* (Qld)
- ⁷⁴ Chapter 3, Part 5, Division 3 of the *Water Act 2000* (Qld)
- ⁷⁵ Chapter 3, Part 2, Division 4 of the *Water Act 2000* (Qld)
- ⁷⁶ Queensland Water Commission, 'Performance: Coal Seam Gas Water,' www.qwc.qld.gov.au, Undated
- ⁷⁷ The former Department of Environment and Resource Management (DERM), 'Guideline for preparing an environmental management plan for coal seam gas activities,' www.ehp.qld.gov.au, 31 March 2010
- ⁷⁸ The former Department of Environment and Resource Management (DERM), 'Guideline for preparing an environmental management plan for coal seam gas activities,' www.ehp.qld.gov.au, 31 March 2010
- ⁷⁹ The former Department of Environment and Resource Management (DERM), 'Guideline for preparing an environmental management plan for coal seam gas activities,' www.ehp.qld.gov.au, 31 March 2010
- ⁸⁰ The former Department of Environment and Resource Management (DERM), 'Coal Seam Gas Water Management Policy' www.ehp.qld.gov.au, June 2010
- ⁸¹ The former Department of Environment and Resource Management (DERM), 'Coal Seam Gas Water Management Policy' www.ehp.qld.gov.au, June 2010
- ⁸² The former Department of Environment and Resource Management (DERM), 'Coal Seam Gas Water Management Policy' www.ehp.qld.gov.au, June 2010

-
- ⁸³ See Chapter 3, Part 9A of the *Water Supply (Safety and Reliability) Act 2008* (Qld)
- ⁸⁴ See Chapter 3, Part 9A of the *Water Supply (Safety and Reliability) Act 2008* (Qld)
- ⁸⁵ Section 201A of the *Water Supply (Safety and Reliability) Act 2008* (Qld)
- ⁸⁶ Section 322 of the *Water Supply (Safety and Reliability) Act 2008* (Qld)
- ⁸⁷ Section 20(c)(i) under the *Water Supply (Safety and Reliability) Act 2008*
- ⁸⁸ Chapter 2, Part 6 of the *Water Act 2000*
- ⁸⁹ Section 362 of the *Water Act 2000* (Qld)
- ⁹⁰ Department of Environment and Heritage Protection, Coal Seam Gas Water Management Policy 2012, <http://www.ehp.qld.gov.au/management/non-mining/documents/csg-water-management-policy.pdf>
- ⁹¹ Department of Environment and Heritage Protection, Coal Seam Gas Water Management Policy 2012, <http://www.ehp.qld.gov.au/management/non-mining/documents/csg-water-management-policy.pdf>
- ⁹² Section 66B of the *Environmental Protection (Waste Management) Regulation 2000* (Qld)
- ⁹³ Arnold, A., 'Changing land: mining the Darling Downs,' May 2010, 28 *Griffith Review: Still the Lucky Country*
- ⁹⁴ Department of Environment and Heritage Protection (DEHP), 'Compliance and enforcement,' http://www.derm.qld.gov.au/environmental_management/coal-seam-gas/enforcement-compliance.html, 14 June 2012
- ⁹⁵ Department of Environment and Heritage Protection (DEHP), 'Compliance and enforcement,' http://www.derm.qld.gov.au/environmental_management/coal-seam-gas/enforcement-compliance.html, 14 June 2012
- ⁹⁶ Department of Environment and Heritage Protection (DEHP), 'Compliance and enforcement,' http://www.derm.qld.gov.au/environmental_management/coal-seam-gas/enforcement-compliance.html, 14 June 2012
- ⁹⁷ The former Department of Environment and Resource Management (DERM), 'State Budget 2011-2012: Agency Budget Highlights,' <http://www.derm.qld.gov.au/about/budget/pdf/budget-highlights-2011.pdf>, Undated
- ⁹⁸ The former Department of Employment, Economic Development and Innovation (DEEDI), 'Land Access Code,' <http://mines.industry.qld.gov.au/mining/706.htm>, November 2010
- ⁹⁹ The former Department of Employment, Economic Development and Innovation (DEEDI), 'Land Access Code,' <http://mines.industry.qld.gov.au/mining/706.htm>, November 2010, p. 4
- ¹⁰⁰ Six Point Act Plan, State Government, December 2012, <http://mines.industry.qld.gov.au/assets/native-title-pdf/qg-response-land-access-framework.pdf>
- ¹⁰¹ Six Point Act Plan, State Government, December 2012, <http://mines.industry.qld.gov.au/assets/native-title-pdf/qg-response-land-access-framework.pdf>
- ¹⁰² Section 3 of the *Strategic Cropping Land Act 2011* (Qld)
- ¹⁰³ Section 14 of the *Strategic Cropping Land Act 2011* (Qld)
- ¹⁰⁴ Section 15 and Chapter 4 of the *Strategic Cropping Land Act 2011* (Qld)
- ¹⁰⁵ Section 7 of the *Strategic Cropping Land Regulation 2011* (Qld)
- ¹⁰⁶ Queensland Government, 'Strategic cropping land mapping,' <http://www.derm.qld.gov.au/land/planning/strategic-cropping/mapping.html>, 12 August 2012
- ¹⁰⁷ Section 119 of the *Strategic Cropping Land Act 2011* (Qld) and the Department of Natural Resources and Mines, "Strategic Cropping Land Standard Conditions Code for Resource Activities", which took effect from 21 December 2013, <http://www.nrm.qld.gov.au/land/planning/pdf/strategic-cropping/scl-standard-conditions-code-web.pdf>
- ¹⁰⁸ Section 119 of the *Strategic Cropping Land Act 2011* (Qld)

-
- ¹⁰⁹ Section 14 of the *Strategic Cropping Land Act 2011* (Qld)
- ¹¹⁰ Chapter 2, Part 2 provides for the process for a validation decision of the *Strategic Cropping Land Act 2011* (Qld)
- ¹¹¹ Section 502 of the *Petroleum and Gas (Production and Safety) Act 2004* (Qld)
- ¹¹² Section 503 of the *Petroleum and Gas (Production and Safety) Act 2004* (Qld)
- ¹¹³ Section 503(1)(a) of the *Petroleum and Gas (Production and Safety) Act 2004* (Qld)
- ¹¹⁴ Section 504 of the *Petroleum and Gas (Production and Safety) Act 2004* (Qld)
- ¹¹⁵ Section 504 of the *Petroleum and Gas (Production and Safety) Act 2004* (Qld)
- ¹¹⁶ Section 495 of the *Petroleum and Gas (Production and Safety) Act 2004* (Qld)
- ¹¹⁷ Section 500 of the *Petroleum and Gas (Production and Safety) Act 2004* (Qld)
- ¹¹⁸ Section 500 of the *Petroleum and Gas (Production and Safety) Act 2004* (Qld)
- ¹¹⁹ Section 532 of the *Petroleum and Gas (Production and Safety) Act 2004* (Qld)
- ¹²⁰ Section 500A of the *Petroleum and Gas (Production and Safety) Act 2004* (Qld)
- ¹²¹ Centre for Social Responsibility in Mining & Centre for Water in the Minerals Industry, Sustainable Minerals Institute, University of Queensland (2010) *Cumulative Impacts: A Good Practice Guide for the Australian Coal Mining Industry*, 10
- ¹²² Arrow Energy (2011) *Draft Environmental Impact Statement*, Chapter 28.
- ¹²³ Department of Infrastructure and Planning, 'Social impact assessment: Guideline for preparing a social impact management plan, Coordinator-General,' September 2010, www.dlqp.qld.gov.au/resources/guideline/simp-guideline.pdf, pp. 7 - 8
- ¹²⁴ Department of Infrastructure and Planning, 'Social impact assessment: Guideline for preparing a social impact management plan, Coordinator-General,' September 2010, www.dlqp.qld.gov.au/resources/guideline/simp-guideline.pdf, pp. 7 - 8
- ¹²⁵ Arrow Energy (2011) *Draft Environmental Impact Statement*, Chapter 28.
- ¹²⁶ <http://www.ehp.qld.gov.au/management/coal-seam-gas/cumulative-management.html>
- ¹²⁷ COAG Ecologically Sustainable Development Steering Committee, National Strategy for Ecology Sustainable Development, <http://www.environment.gov.au/about/esd/publications/strategy/intro.html>, December 1992 and *Telstra Corporation Ltd v Hornsby Shire Council* [2006] NSWLEC 133 [146]
- ¹²⁸ Weier, A. Loke, P. 'Precaution and the Precautionary Principle,' 2007, The Australian Productivity Commission, Staff Working Paper, http://www.pc.gov.au/data/assets/pdf_file/0005/67271/precautionaryprinciple.pdf
- ¹²⁹ See for example, the definition of the precautionary principle stated under Principle 15 of the Rio Declaration.
- ¹³⁰ Kenneth R Foster et al, 'Science and the Precautionary Principle', 2000, *Science*, 979 – 81, 979.
- ¹³¹ See for example the World Charter for Nature 1982 and the Ministerial Declaration from the Third International Conference on the Protection of the North Sea held in 1990
- ¹³² Weier, A. Loke, P. 'Precaution and the Precautionary Principle,' 2007, The Australian Productivity Commission, Staff Working Paper, http://www.pc.gov.au/data/assets/pdf_file/0005/67271/precautionaryprinciple.pdf
- ¹³³ Sands P., 'Principles of International Environmental Law', 2003, 2nd Ed., Cambridge University Press, 267 and Peel, J., 'Interpretation and Application of the Precautionary Principle: Australia's Contribution' 2009, *Review of European Community and International Environmental Law* 18(1), 11

-
- ¹³⁴ One legal analysis identified 14 different formulations of the principle in treaties and declarations. See, for example Kenneth R. Foster et al, 'Science and the Precautionary Principle', 2000, *Science*, 979 – 81, 979
- ¹³⁵ Weier, A. and Loke, P. 2007, 'Precaution and the Precautionary Principle: two Australian case studies,' Productivity Commission Staff Working Paper, Melbourne, September, 17
- ¹³⁶ OECD Joint Working Party on Trade and Environment, 2002, 'Uncertainty and Precaution: Implications for Trade and Environment,' OECD
- ¹³⁷ Sections 4 and 5 of the *Sustainable Planning Act 2009* (Qld)
- ¹³⁸ *Telstra Corporation Ltd v Hornsby Shire Council* [2006] NSWLEC 133 [146]
- ¹³⁹ Holling, C. S, 1978, *Adaptive environmental assessment and management*, John Wiley & Sons, New York.
- ¹⁴⁰ The former Department of Environment and Resource Management (DERM), 'Adaptive environmental management regime for the coal seam gas industry,' <http://www.ehp.qld.gov.au/management/coal-seam-gas/fact-sheets.html>, 23 June 2011, p. 1
- ¹⁴¹ Wilcher, R., and Hawkes, P., Herbert Geer, 'The precautionary principle,' <http://herbertgeer.e-newsletter.com.au/link/id/zzzz4ccfab5ea72ca773/page.html#zzzz4ccfa82d7fe37954>, 2010 citing *Telstra Corporation Ltd v Hornsby Shire Council* [2006] NSWLEC 133 at 163-164.
- ¹⁴² Ruhl, J.B. 'Regulation by adaptive management-Is it possible?' 2005-2006, 7 (1) *Minnesota Journal of Law Science and Technology* 21 and Michael A McCarthy and Hugh P Possingham, 'Active Adaptive Management for Conservation,' 2006, 21 (4) *Conservation Biology* 956
- ¹⁴³ Williams, B. K. 'Adaptive management and natural resources,' 2011, *Journal of Environmental Management*, 92 pp 1346-1353
- ¹⁴⁴ Peter, J. Balint, Ronald, E. Stewart, Anand Desai and Lawrence, C. Walters, 'Managing Wicked Environmental Problems: Integrating Public Participation and Adaptive Management' 2006, *National Convention of the Society of American Foresters*
- ¹⁴⁵ Halbert, C.L., 'How Adaptive is Adaptive Management? Implementing Adaptive Management in Washington State and British Columbia' 1993 1(3) *Reviews in Fisheries Science* 261
- ¹⁴⁶ Williams, B. K. 'Adaptive management and natural resources,' 2011, *Journal of Environmental Management*, 92 pp 1346-1353
- ¹⁴⁷ Allen, C. R. Fontain, J. J. Pope, K. L. Garmestani, A. S. 'Adaptive management for a turbulent future. 2011. *Journal of Environmental Management*. 92 pp 1339-1345.
- ¹⁴⁸ Gregory, R. Ohlson, D. and Arvai, J. Deconstructing adaptive management: criteria for applications to environmental management. 2006. *Ecological Applications* 16(6) pp2411-242.
- ¹⁴⁹ Gregory, R. Ohlson, D. and Arvai, J. Deconstructing adaptive management: criteria for applications to environmental management. 2006. *Ecological Applications* 16(6) pp2411-2425 and Holly Doremus et al. Making good use of adaptive management. 2011. Centre for Progressive Reform, <http://ssrn.com/abstract=1808106>
- ¹⁵⁰ The former Department of Environment and Resource Management (DERM), 'Adaptive environmental management regime for the coal seam gas industry,' <http://www.ehp.qld.gov.au/management/coal-seam-gas/fact-sheets.html>, 23 June 2011, p. 2
- ¹⁵¹ Department of Environment and Heritage Protection, Coal Seam Gas Water Management Policy 2012, <http://www.ehp.qld.gov.au/management/non-mining/documents/csg-water-management-policy.pdf>
- ¹⁵² Department of Environment and Heritage Protection, Coal Seam Gas Water Management Policy 2012, <http://www.ehp.qld.gov.au/management/non-mining/documents/csg-water-management-policy.pdf>
- ¹⁵³ Sheriff, G., Wilson B., and Steed, J., 'ESG and the Energy Sector. Water Concerns: QLD Coal Seam Gas Developments Report Summary. Water, Water Everywhere...Few Drops to Drink?,' Asia Pacific Equity Research, J.P. Morgan Securities Australia Limited, 30 November 2010

¹⁵⁴ Department of Environment and Resource Management, 'Environmental Assessment and Management of Coal Seam Gas Developments,' <http://www.derm.qld.gov.au/factsheets/pdf/environment/en2.pdf>, June 2011

¹⁵⁵ Ryan, S., 'Coal Seam Gas: Impacts and Regulation, A Queensland Perspective,' 27 September 2011, Prepared for Environmental Defenders Office, Victoria

¹⁵⁶ *Sydney Morning Herald*, 31 July 2013

¹⁵⁷ Hoare, R., 'The Rise of the Girly Gas,' October 2010, Norton Rose, <http://www.mondaq.com/australia/article.asp?articleid=113506>

¹⁵⁸ Sheriff, G., Wilson B., and Steed, J., 'ESG and the Energy Sector. Water Concerns: QLD Coal Seam Gas Developments Report Summary. Water, Water Everywhere... Few Drops to Drink?,' Asia Pacific Equity Research, J.P. Morgan Securities Australia Limited, 30 November 2010

¹⁵⁹ See, for example, Atkinson, C.M., 'Environmental Hazards of Oil and Gas Exploration,' Prepared for the National Parks Association of New South Wales, August 2002 and Caroon Coal Action Group, 'Environmental, Social and Economic Issues Associated with Coal Seam Methane (CSM), Extraction and Power Generation,' Undated

¹⁶⁰ Ryan, S., 'Coal Seam Gas: Impacts and Regulation, A Queensland Perspective,' 27 September 2011, Prepared for Environmental Defenders Office, Victoria

¹⁶¹ See Wylie, P. 'A Vision for the Condamine Catchment,' Dalby, Horizontal Rural Management, 2006 and Caroon Coal Action Group, 'Environmental, Social and Economic Issues Associated with Coal Seam Methane (CSM), Extraction and Power Generation,' Undated

¹⁶² See, for example Rutovitz, J., Harris, S., Kuruppu, N., and Dunstan, C., 'Drilling Down. Coal Seam Gas: A background paper,' Prepared by the Institute for Sustainable Futures, University of Technology, Sydney, for the Sydney City Council, September 2011 and Lloyd-Smith and Senjen, 'Hydraulic Fracturing in Coal Seam Gas Mining: The Risks to Our Health, Communities, Environment and Climate,' National Toxics Network

¹⁶³ Rutovitz, J., Harris, S., Kuruppu, N., and Dunstan, C., 'Drilling Down. Coal Seam Gas: A background paper,' Prepared by the Institute for Sustainable Futures, University of Technology, Sydney, for the Sydney City Council, September 2011

¹⁶⁴ Queensland Government, 'Your questions answered: Coal seam gas and liquefied natural gas,' <http://www.ehp.qld.gov.au/management/coal-seam-gas/your-questions-answered.html>, Undated

¹⁶⁵ Queensland Government, 'Your questions answered: Coal seam gas and liquefied natural gas,' <http://www.ehp.qld.gov.au/management/coal-seam-gas/your-questions-answered.html>, Undated

¹⁶⁶ Sheriff, G., Wilson B., and Steed, J., 'ESG and the Energy Sector. Water Concerns: QLD Coal Seam Gas Developments Report Summary. Water, Water Everywhere... Few Drops to Drink?,' Asia Pacific Equity Research, J.P. Morgan Securities Australia Limited, 30 November 2010

¹⁶⁷ Sheriff, G., Wilson B., and Steed, J., 'ESG and the Energy Sector. Water Concerns: QLD Coal Seam Gas Developments Report Summary. Water, Water Everywhere... Few Drops to Drink?,' Asia Pacific Equity Research, J.P. Morgan Securities Australia Limited, 30 November 2010

¹⁶⁸ Christie, T., 'Resolving the coal seam gas crisis through proper public participation – Coal seam gas, agriculture and the environment: is co-existence impossible or inevitable?' *Independent Australia*, <http://www.independentaustalia.net/2011/australian-identity/queensland/resolving-the-csg-crisis-through-proper-public-participation/>, 29 May 2011

¹⁶⁹ The Queensland government, 'Your questions about CSG answered,' <http://www.ehp.qld.gov.au/management/coal-seam-gas/your-questions-answered.html>, Undated

¹⁷⁰ For a summary of the research that contributes to these views, please see Howarth R., Santoro, R., and Ingraffea, A., 'Methane and the greenhouse gas footprint of natural gas from shale formations,' 106 *Climatic Change* 4, June 2011

¹⁷¹ Rutovitz, J., Harris, S., Kuruppu, N., and Dunstan, C., 'Drilling Down. Coal Seam Gas: A background paper,' Prepared by the Institute for Sustainable Futures, University of Technology, Sydney, for the Sydney City Council, September 2011

¹⁷² Rutovitz, J., Harris, S., Kuruppu, N., and Dunstan, C., 'Drilling Down. Coal Seam Gas: A background paper,' Prepared by the Institute for Sustainable Futures, University of Technology, Sydney, for the Sydney City Council, September 2011

¹⁷³ United States Environmental Protection Agency, 'Glossary of Climate Change Terms,' <http://epa.gov/climatechange/glossary.html>, 14 June 2012

¹⁷⁴ Rutovitz, J., Harris, S., Kuruppu, N., and Dunstan, C., 'Drilling Down. Coal Seam Gas: A background paper,' Prepared by the Institute for Sustainable Futures, University of Technology, Sydney, for the Sydney City Council, September 2011

¹⁷⁵ Rutovitz, J., Harris, S., Kuruppu, N., and Dunstan, C., 'Drilling Down. Coal Seam Gas: A background paper,' Prepared by the Institute for Sustainable Futures, University of Technology, Sydney, for the Sydney City Council, September 2011

¹⁷⁶ Most of these studies looked at the greenhouse gas impacts of shale gas. See for example, Howarth R., Santoro, R., and Ingraffea, A., 'Methane and the greenhouse gas footprint of natural gas from shale formations,' 106 *Climatic Change* 4, June 2011

¹⁷⁷ Senate, Rural Affairs and Transport References Committee, 'Management of the Murray Darling Basin, Interim Report: the impact of mining coal seam gas on the management of the Murray Darling Basin,' Commonwealth of Australia, www.aph.gov.au/.../Senate_Committees?url.../interim_report/report, November 2011

¹⁷⁸ Rutovitz, J., Harris, S., Kuruppu, N., and Dunstan, C., 'Drilling Down. Coal Seam Gas: A background paper,' Prepared by the Institute for Sustainable Futures, University of Technology, Sydney, for the Sydney City Council, September 2011

¹⁷⁹ Senate, Rural Affairs and Transport References Committee, 'Management of the Murray Darling Basin, Interim Report: the impact of mining coal seam gas on the management of the Murray Darling Basin,' Commonwealth of Australia, www.aph.gov.au/.../Senate_Committees?url.../interim_report/report, November 2011

¹⁸⁰ Rutovitz, J., Harris, S., Kuruppu, N., and Dunstan, C., 'Drilling Down. Coal Seam Gas: A background paper,' Prepared by the Institute for Sustainable Futures, University of Technology, Sydney, for the Sydney City Council, September 2011

¹⁸¹ The Climate Institute, Discussion Paper, Coal Seam Gas Emissions: Facts, Challenges and Questions, 12 September 2012

¹⁸² The Climate Institute, Discussion Paper, Coal Seam Gas Emissions: Facts, Challenges and Questions, 12 September 2012, p. 17.

¹⁸³ Santos, I., Maher, D., Centre for Biogeochemistry Research, Southern Cross University Submission to Department of Climate Change and Energy Efficiency, National Greenhouse and Energy Reporting (Measurement) Amendment Determination 2012: Consultation draft submissions on emission estimation for coal seam gas, 14 November 2012, www.scu.edu.au/coastal-biogeochemistry/

¹⁸⁴ Santos, I., Maher, D., Centre for Biogeochemistry Research, Southern Cross University Submission to Department of Climate Change and Energy Efficiency, National Greenhouse and Energy Reporting (Measurement) Amendment Determination 2012: Consultation draft submissions on emission estimation for coal seam gas, 14 November 2012, www.scu.edu.au/coastal-biogeochemistry/

¹⁸⁵ Santos, I., Maher, D., Centre for Biogeochemistry Research, Southern Cross University Submission to Department of Climate Change and Energy Efficiency, National Greenhouse and Energy Reporting (Measurement) Amendment Determination 2012: Consultation draft submissions on emission estimation for coal seam gas, 14 November 2012, www.scu.edu.au/coastal-biogeochemistry/

¹⁸⁶ Santos, I., Maher, D., Centre for Biogeochemistry Research, Southern Cross University Submission to Department of Climate Change and Energy Efficiency, National Greenhouse and Energy Reporting (Measurement) Amendment Determination 2012: Consultation draft submissions on emission estimation for coal seam gas, 14 November 2012, www.scu.edu.au/coastal-biogeochemistry/

¹⁸⁷ Santos, I., Maher, D., Centre for Biogeochemistry Research, Southern Cross University Submission to Department of Climate Change and Energy Efficiency, National Greenhouse and Energy Reporting (Measurement)

Amendment Determination 2012: Consultation draft submissions on emission estimation for coal seam gas, 14 November 2012, www.scu.edu.au/coastal-biogeochemistry/

¹⁸⁸ Santos, I., Maher, D., Centre for Biogeochemistry Research, Southern Cross University Submission to Department of Climate Change and Energy Efficiency, National Greenhouse and Energy Reporting (Measurement) Amendment Determination 2012: Consultation draft submissions on emission estimation for coal seam gas, 14 November 2012, www.scu.edu.au/coastal-biogeochemistry/

¹⁸⁹ Santos, I., Maher, D., Centre for Biogeochemistry Research, Southern Cross University Submission to Department of Climate Change and Energy Efficiency, National Greenhouse and Energy Reporting (Measurement) Amendment Determination 2012: Consultation draft submissions on emission estimation for coal seam gas, 14 November 2012, www.scu.edu.au/coastal-biogeochemistry/

¹⁹⁰ Santos, I., Maher, D., Centre for Biogeochemistry Research, Southern Cross University Submission to Department of Climate Change and Energy Efficiency, National Greenhouse and Energy Reporting (Measurement) Amendment Determination 2012: Consultation draft submissions on emission estimation for coal seam gas, 14 November 2012, www.scu.edu.au/coastal-biogeochemistry/

¹⁹¹ Department of Environment and Heritage Protection (DEHP), 'Underground Water,' <http://www.ehp.qld.gov.au/management/coal-seam-gas/groundwater.html>, 17 September 2012

¹⁹² Department of Environment and Heritage Protection (DEHP), 'Underground Water,' <http://www.ehp.qld.gov.au/management/coal-seam-gas/groundwater.html>, 17 September 2012

¹⁹³ Australian Government National Water Commission, 'Coal seam gas,' <http://www.nwc.gov.au/reform/position/coal-seam-gas>, 3 July 2012

¹⁹⁴ Sheriff, G., Wilson B., and Steed, J., 'ESG and the Energy Sector. Water Concerns: QLD Coal Seam Gas Developments Report Summary. Water, Water Everywhere...Few Drops to Drink?,' Asia Pacific Equity Research, J.P. Morgan Securities Australia Limited, 30 November 2010

¹⁹⁵ Senate, Rural Affairs and Transport References Committee, 'Management of the Murray Darling Basin, Interim Report: the impact of mining coal seam gas on the management of the Murray Darling Basin,' Commonwealth of Australia, www.aph.gov.au/.../Senate_Committees?url.../interim_report/report, November 2011, p. 19

¹⁹⁶ Senate, Rural Affairs and Transport References Committee, 'Management of the Murray Darling Basin, Interim Report: the impact of mining coal seam gas on the management of the Murray Darling Basin,' Commonwealth of Australia, www.aph.gov.au/.../Senate_Committees?url.../interim_report/report, November 2011

¹⁹⁷ Sheriff, G., Wilson B., and Steed, J., 'ESG and the Energy Sector. Water Concerns: QLD Coal Seam Gas Developments Report Summary. Water, Water Everywhere...Few Drops to Drink?,' Asia Pacific Equity Research, J.P. Morgan Securities Australia Limited, 30 November 2010

¹⁹⁸ Sheriff, G., Wilson B., and Steed, J., 'ESG and the Energy Sector. Water Concerns: QLD Coal Seam Gas Developments Report Summary. Water, Water Everywhere...Few Drops to Drink?,' Asia Pacific Equity Research, J.P. Morgan Securities Australia Limited, 30 November 2010

¹⁹⁹ Sheriff, G., Wilson B., and Steed, J., 'ESG and the Energy Sector. Water Concerns: QLD Coal Seam Gas Developments Report Summary. Water, Water Everywhere...Few Drops to Drink?,' Asia Pacific Equity Research, J.P. Morgan Securities Australia Limited, 30 November 2010 and Senate, Rural Affairs and Transport References Committee, 'Management of the Murray Darling Basin, Interim Report: the impact of mining coal seam gas on the management of the Murray Darling Basin,' Commonwealth of Australia, www.aph.gov.au/.../Senate_Committees?url.../interim_report/report, November 2011, p. 21. See also Herczeg, A., 'Water: Science and Solutions for Australia, Chapter 4 – Groundwater' CSIRO, 2011, p. 47

²⁰⁰ Sheriff, G., Wilson B., and Steed, J., 'ESG and the Energy Sector. Water Concerns: QLD Coal Seam Gas Developments Report Summary. Water, Water Everywhere...Few Drops to Drink?,' Asia Pacific Equity Research, J.P. Morgan Securities Australia Limited, 30 November 2010 and Senate, Rural Affairs and Transport References Committee, 'Management of the Murray Darling Basin, Interim Report: the impact of mining coal seam gas on the management of the Murray Darling Basin,' Commonwealth of Australia, www.aph.gov.au/.../Senate_Committees?url.../interim_report/report, November 2011, p. 21. See also Herczeg, A., 'Water: Science and Solutions for Australia, Chapter 4 – Groundwater' CSIRO, 2011, p. 47

-
- ²⁰¹ Senate, Rural Affairs and Transport References Committee, 'Management of the Murray Darling Basin, Interim Report: the impact of mining coal seam gas on the management of the Murray Darling Basin,' Commonwealth of Australia, www.aph.gov.au/.../Senate_Committees?url.../interim_report/report, November 2011
- ²⁰² Senate, Rural Affairs and Transport References Committee, 'Management of the Murray Darling Basin, Interim Report: the impact of mining coal seam gas on the management of the Murray Darling Basin,' Commonwealth of Australia, www.aph.gov.au/.../Senate_Committees?url.../interim_report/report, November 2011, p. 20
- ²⁰³ See Parsons Brinckerhoff, 'Coal Seam Gas Water Management Study – Final Report,' August 2004 which concluded that the Walloon Coal Measures are not hydraulically connected to GAB aquifers but that further hydrological data is required. See Morgan, C., Vink, S., 'Assessment of Impacts of the proposed coal seam gas operations on surface and groundwater systems in the Murray Darling Basin,' Centre for Water in the Minerals Industry, Sustainable Minerals Institute, The University of Queensland, 2010
- ²⁰⁴ Rutovitz, J., Harris, S., Kuruppu, N., and Dunstan, C., 'Drilling Down. Coal Seam Gas: A background paper,' Prepared by the Institute for Sustainable Futures, University of Technology, Sydney, for the Sydney City Council, September 2011
- ²⁰⁵ Geoscience Australia, 'Summary of Advice in Relation to the Potential Impacts of Coal Seam Gas Extraction in the Surat and Bowen Basins, Queensland,' 29 September 2010
- ²⁰⁶ Australian Government National Water Commission (NWC), Position Paper, 'Coal Seam Gas and the Water Challenge,' <http://www.nwc.gov.au/reform/position/coal-seam-gas>, December 2010
- ²⁰⁷ Queensland Water Commission (QWC), 'Draft Surat Underground Water Impact Report - Summary,' www.qwc.qld.gov.au, Undated
- ²⁰⁸ Queensland Water Commission (QWC), 'Draft Surat Underground Water Impact Report - Summary,' www.qwc.qld.gov.au, Undated
- ²⁰⁹ The former Department of Environment and Resource Management (DERM), 'Healthy Headwaters Program,' <http://www.derm.qld.gov.au/water/health/healthy-headwaters/index.html>, 30 July 2012
- ²¹⁰ See *Environment Protection and Biodiversity Conservation Amendment (Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development) Bill 2012* (Cth) and Tony Burke MP, Minister for Sustainability, Environment, Water, Population and Communities, 'Interim committee to advise on coal seam gas and coal mining,' <http://www.environment.gov.au/minister/burke/2012/mr20120127.html>, 27 January 2012
- ²¹¹ Gas Industry Social and Environmental Research Alliance (GISERA), 'Providing the Australian natural gas industry, government and community with quality assured scientific research,' <http://www.gisera.org.au/about.html>, Undated
- ²¹² The University of Queensland Centre for Coal Seam Gas (CCSG), 'About CCSG,' <http://www.ccsq.uq.edu.au/AboutCCSG.aspx>, 2012
- ²¹³ For the DEHP ToR, see: www.ehp.qld.gov.au/.../impact-assessment/eis.../generic-draft-tor.docx. For the DSDIP ToR, see: <http://www.dsdiq.qld.gov.au/assessments-and-approvals/terms-of-reference.html>
- ²¹⁴ See the following media statement released by the Queensland Cabinet:
<http://statements.qld.gov.au/Statement/2013/7/17/newman-government-cuts-resources-red-tape>
- ²¹⁵ *Generic Terms of Reference for an environmental impact statement*, July 2013 (for both the DEHP and DSDIP), at 3.2.
- ²¹⁶ *Generic draft terms of reference for an environmental impact statement*, July 2013, section 3.6
- ²¹⁷ *Preparing an environmental impact statement Guideline for proponents*, February 2013, available at: <http://www.dsdiq.qld.gov.au/resources/guideline/cg/eis-guideline-for-proponents.pdf>
- ²¹⁸ *Environmental Protection Act 1994*, 2013 Act No. 27, section 143.
- ²¹⁹ *Social Impact Assessment Guideline*, July 2013.
<http://www.dsdiq.qld.gov.au/resources/guideline/social-impact-assessment-guideline.pdf>

-
- ²²⁰ Social impact assessment: Guideline to preparing a social impact management plan, September 2012. See the cached version of the previous SIA guidelines from this webpage:
<http://www.dlg.qld.gov.au/resources/guideline/cg/social-impact-management-plan-guideline.pdf>
- ²²¹ Social impact assessment: Guideline to preparing a social impact management plan, September 2012, Page 7.
- ²²² Social Impact Assessment Guideline, July 2013, page 10.
<http://www.dsdip.qld.gov.au/resources/guideline/social-impact-assessment-guideline.pdf>
- ²²³ Thomas, I., and Elliott, M., Environmental Impact Assessment in Australia: Theory and Practice, *The Federal Press*, 2005, 4th edition
- ²²⁴ Thomas, I., and Elliott, M., Environmental Impact Assessment in Australia: Theory and Practice, *The Federal Press*, 2005, 4th edition, p. 25
- ²²⁵ Thomas, I., and Elliott, M., Environmental Impact Assessment in Australia: Theory and Practice, *The Federal Press*, 2005, 4th edition, p. 25 citing O’Riordan, T., ‘Environmentalism,’ Pion, London, 1976
- ²²⁶ Thomas, I., and Elliott, M., Environmental Impact Assessment in Australia: Theory and Practice, *The Federal Press*, 2005, 4th edition
- ²²⁷ Santos Gladstone LNG, ‘About the Project,’ <http://www.glng.com.au/Content.aspx?p=55>, 3 September 2012
- ²²⁸ Santos Gladstone LNG, ‘About the Project,’ <http://www.glng.com.au/Content.aspx?p=55>, 3 September 2012
- ²²⁹ Thomas, I., and Elliott, M., Environmental Impact Assessment in Australia: Theory and Practice, *The Federal Press*, 2005, 4th edition, p. 21
- ²³⁰ Bimblebox Nature Refuge, <http://bimblebox.org/>, December 2012
- ²³¹ Thomas, I., and Elliott, M., Environmental Impact Assessment in Australia: Theory and Practice, *The Federal Press*, 2005, 4th edition, p. 26
- ²³² *Barrington-Gloucester-Stroud Preservation Alliance Incorporated v Planning Assessment Commission and AGL Upstream Infrastructure Investments Pty Limited*, [2012] NSW LEC 197
- ²³³ *Barrington-Gloucester-Stroud Preservation Alliance Incorporated v Planning Assessment Commission and AGL Upstream Infrastructure Investments Pty Limited*, [2012] NSW LEC 197
- ²³⁴ *Barrington-Gloucester-Stroud Preservation Alliance Incorporated v Planning Assessment Commission and AGL Upstream Infrastructure Investments Pty Limited*, [2012] NSW LEC 197
- ²³⁵ Senate, Rural Affairs and Transport References Committee, ‘Management of the Murray Darling Basin, Interim Report: the impact of mining coal seam gas on the management of the Murray Darling Basin,’ Commonwealth of Australia, www.aph.gov.au/.../Senate_Committees?url.../interim_report/report, November 2011
- ²³⁶ The Coordinator-General Queensland Curtis LNG Project; Coordinator-General’s report on the environmental impact statement, <http://www.dsdip.qld.gov.au/assessments-and-approvals/queensland-curtis-liquefied-natural-gas-project.html>, June 2010
- ²³⁷ The Coordinator-General Queensland Curtis LNG Project; Coordinator-General’s report on the environmental impact statement, <http://www.dsdip.qld.gov.au/assessments-and-approvals/queensland-curtis-liquefied-natural-gas-project.html>, June 2010
- ²³⁸ See for example the submissions made by the Queensland Murray Darling Basin Committee, the Coastal and Wetlands Society Inc NSW, Doctors for the Environment Australia and Oz Environmental Pty Ltd. Available online at http://www.aph.gov.au/Parliamentary_Business/Committees/Senate_Committees?url=rrat_ctte/mdb/submissions.htm
- ²³⁹ See for example the submissions made by the Queensland Murray Darling Basin Committee, the Coastal and Wetlands Society Inc NSW, Doctors for the Environment Australia and Oz Environmental Pty Ltd. Available online at http://www.aph.gov.au/Parliamentary_Business/Committees/Senate_Committees?url=rrat_ctte/mdb/submissions.htm

-
- ²⁴⁰ Information gathered during management might be fed into hydrological or geological models, which can be used by all CSG operators, however there is little scope for learning and spreading knowledge about what management actions work.
- ²⁴¹ Swayne, Nicola, 'Regulating coal seam gas in Queensland: Lessons in an adaptive environmental management approach?' (2012) 29 *Environmental Planning and Law Journal* 163, p. 184-185
- ²⁴² O. Posser, L. Wolf and A. Littleboy, *Water in Mining and Industry*, in CSIRO, *Water* (2011) p.144.
- ²⁴³ Balint, P. Stewart, R. E. Desai, A. Walters, L. C., 2011, *Wicked Environmental Problems: Managing Uncertainty and Conflict*, Island Press
- ²⁴⁴ For example, Lock the Gate Alliance (see <https://lockthegate.org.au/>)
- ²⁴⁵ This is especially the case if the management framework is designed by a CSG company
- ²⁴⁶ Swayne, Nicola, 'Regulating coal seam gas in Queensland: Lessons in an adaptive environmental management approach?' (2012) 29 *Environmental Planning and Law Journal* 163, p 179
- ²⁴⁷ Queensland government, 'Blueprint for Queensland's LNG industry,' www.industry.qld.gov.au, 2008/2009
- ²⁴⁸ The former Department of Employment, Economic Development and Innovation, 'Queensland's LNG industry: A once in a generation opportunity for a generation of employment' www.industry.qld.gov.au, November 2010
- ²⁴⁹ Energy Skills Queensland, <http://www.energyskillsqld.com.au>, 2012
- ²⁵⁰ Collins, N. et al. (2013) Energy resources from the food bowl: an uneasy co-existence. Identifying and managing cumulative impacts of mining and agriculture. Research Paper, Sustainable Minerals Institute, University of Queensland: Brisbane, Australia.
- ²⁵¹ Gittins, R. 'Industry's coal seam gas campaign is a con' SMH 9 October 2013.
- ²⁵² Swayne, Nicola, 'Regulating coal seam gas in Queensland: Lessons in an adaptive environmental management approach?' (2012) 29 *Environmental Planning and Law Journal* 163, p. 163
- ²⁵³ Paul Cleary, 2011, 'Too Much Luck: The Mining Boom and Australia's Future,' Black Inc Publishing, p. 108
- ²⁵⁴ Paul Cleary, 2011, 'Too Much Luck: The Mining Boom and Australia's Future,' Black Inc Publishing, p. 108
- ²⁵⁵ Senate, Rural Affairs and Transport References Committee, 'Management of the Murray Darling Basin, Interim Report: the impact of mining coal seam gas on the management of the Murray Darling Basin,' Commonwealth of Australia, www.aph.gov.au/.../Senate_Committees?url.../interim_report/report, November 2011
- ²⁵⁶ <http://reneweconomy.com.au/2013/even-abbott-coal-generation-future-44470>
- ²⁵⁷ Senate, Rural Affairs and Transport References Committee, 'Management of the Murray Darling Basin, Interim Report: the impact of mining coal seam gas on the management of the Murray Darling Basin,' Commonwealth of Australia, www.aph.gov.au/.../Senate_Committees?url.../interim_report/report, November 2011
- ²⁵⁸ Senate, Rural Affairs and Transport References Committee, 'Management of the Murray Darling Basin, Interim Report: the impact of mining coal seam gas on the management of the Murray Darling Basin,' Commonwealth of Australia, www.aph.gov.au/.../Senate_Committees?url.../interim_report/report, November 2011
- ²⁵⁹ Kerry Carrington, 'We are letting our resources luck turn to dust,' *The Conversation*, <http://theconversation.edu.au/we-are-letting-our-resources-luck-turn-to-dust-4456>, November 2011
- ²⁶⁰ Senate, Rural Affairs and Transport References Committee, 'Management of the Murray Darling Basin, Interim Report: the impact of mining coal seam gas on the management of the Murray Darling Basin,' Commonwealth of Australia, www.aph.gov.au/.../Senate_Committees?url.../interim_report/report, November 2011 and Kerry Carrington, 'We are letting our resources luck turn to dust,' *The Conversation*, <http://theconversation.edu.au/we-are-letting-our-resources-luck-turn-to-dust-4456>, November 2011
- ²⁶¹ UnitingCare Queensland, "The resources boom and essential human services in Queensland: A synopsis of the impacts of mining and gas operations on UnitingCare Queensland's services, February 2013, page 4.

²⁶² Ibid p. 5.

²⁶³ Ibid p. 5.

²⁶⁴ Social Impact Assessment Guideline, July 2013, page 4.

<http://www.dsdip.qld.gov.au/resources/guideline/social-impact-assessment-guideline.pdf>

²⁶⁵ Social impact assessment: Guideline to preparing a social impact management plan, September 2012.

See the cached version of the previous SIA guidelines from this webpage:

<http://www.dlg.qld.gov.au/resources/guideline/cg/social-impact-management-plan-guideline.pdf>

²⁶⁶ Carrington, K., Hogg, R., and McIntosh, A., 'The resource boom's underbelly: Criminological impacts of mining development,' *Australian and New Zealand Journal of Criminology* 2011 44: 335, p. 344

²⁶⁷ O'Faircheallaigh, C., 'Making Social Impact Assessment Count: A negotiation based approach for indigenous peoples,' *Aboriginal Politics and Public Sector Management*, Research Paper No. 3 August 1996, Centre for Australian Public Sector Management, Griffith University

²⁶⁸ Carrington, K. et al, 'The social impacts of the resources boom on rural communities,' 21(1) *Rural Society* p. 17, October 2011

²⁶⁹ Petkova, V., Lockie, S., Rolfe, J., and Ivanova, G., 'Mining developments and social impacts on communities: Bowen Basin case studies,' (2009) 19:3 *Rural Society* p. 211

²⁷⁰ Carrington, K., Hogg, R., and McIntosh, A., 'The resource boom's underbelly: Criminological impacts of mining development,' *Australian and New Zealand Journal of Criminology* 2011 44: 335, p. 344

²⁷¹ *Generic Terms of Reference* (for both the DEHP and DSDIP), at 3.2

²⁷² Ibid, p 7.

²⁷³ Arrow Energy (2011) *Draft Environmental Impact Statement*, Chapter 28, 1-32.

²⁷⁴ Centre for Social Responsibility in Mining & Centre for Water in the Minerals Industry, Sustainable Minerals Institute, University of Queensland (2010) *Cumulative Impacts: A Good Practice Guide for the Australian Coal Mining Industry*, 1.

²⁷⁵ Arrow Energy (2011) *Draft Environmental Impact Statement*, Chapter 28, 11.

²⁷⁶ Section 33 of the *State Development and Public Works Organisation Act 1971* (Qld)

²⁷⁷ Section 26 of the *Environmental Protection Act 1994* (Qld) and Schedule 5 of the *Environmental Protection Regulation 2009* (Qld)

²⁷⁸ Section 157 of the *Environmental Protection Act 1994* (Qld)

²⁷⁹ Sections 157 and 521 of the *Environmental Protection Act 1994* (Qld)

²⁸⁰ Sections 152 and 153 of the *Environmental Protection Act 1994* (Qld)

²⁸¹ Section 153 of the *Environmental Protection Act 1994* (Qld)

²⁸² Section 155 of the *Environmental Protection Act 1994* (Qld)

²⁸³ See former Department of Environment and Resource Management, www.derm.qld.gov.au

²⁸⁴ Queensland Water Commission, www.qwc.qld.gov.au and Arrow Energy, www.arrowenergy.com.au

²⁸⁵ See Queensland Water Commission, www.qwc.qld.gov.au

²⁸⁶ Section 521 of the *Environmental Protection Act 1994* (Qld)

²⁸⁷ Section 521 of the *Environmental Protection Act 1994* (Qld)

-
- ²⁸⁸ Section 521 of the *Environmental Protection Act 1994* (Qld)
- ²⁸⁹ Section 523 of the *Environmental Protection Act 1994* (Qld)
- ²⁹⁰ Sara Pirk, 'Expanding Public Participation in Environmental Justice: Methods, Legislation, Litigation and Beyond' (2002) 17 *Journal of Environmental Law and Litigation* 207
- ²⁹¹ Sara Pirk, 'Expanding Public Participation in Environmental Justice: Methods, Legislation, Litigation and Beyond' (2002) 17 *Journal of Environmental Law and Litigation* 207
- ²⁹² Neenah Estrella-Luna, 'Public participation in Environmental Decision Making' (2004) 22 *Delaware Lawyer*, Summer 11
- ²⁹³ Renee A Irvin, John Stansbury, 'Citizen Participation in Decision Making: Is It Worth the Effort?' (2004) Vol 64 Issue 1 *Public Administration Review* 55-65
- ²⁹⁴ Sara Pirk, 'Expanding Public Participation in Environmental Justice: Methods, Legislation, Litigation and Beyond' (2002) 17 *Journal of Environmental Law and Litigation* 207
- ²⁹⁵ Sara Pirk, 'Expanding Public Participation in Environmental Justice: Methods, Legislation, Litigation and Beyond' (2002) 17 *Journal of Environmental Law and Litigation* 207
- ²⁹⁶ Sara Pirk, 'Expanding Public Participation in Environmental Justice: Methods, Legislation, Litigation and Beyond' (2002) 17 *Journal of Environmental Law and Litigation* 207
- ²⁹⁷ Neenah Estrella-Luna, 'Public participation in Environmental Decision Making' (2004) 22 *Delaware Lawyer*, Summer 11
- ²⁹⁸ Christie, T., 'Resolving the coal seam gas crisis through proper public participation – Coal seam gas, agriculture and the environment: is co-existence impossible or inevitable?' *Independent Australia*, <http://www.independentaustalia.net/2011/australian-identity/queensland/resolving-the-csg-crisis-through-proper-public-participation/>, 29 May 2011
- ²⁹⁹ Sherry R. Arnstein, 'A Ladder of Citizen Participation' (1969) 35 *Journal of American Institute of Planner* 216-224
- ³⁰⁰ Christie, T., 'Resolving the coal seam gas crisis through proper public participation – Coal seam gas, agriculture and the environment: is co-existence impossible or inevitable?' *Independent Australia*, <http://www.independentaustalia.net/2011/australian-identity/queensland/resolving-the-csg-crisis-through-proper-public-participation/>, 29 May 2011
- ³⁰¹ The Honorable Stirling Hinchcliffe MP, Minister for Employment, Skills and Mining, Media Statement, 'Surat Basin Engagement Committee Announced,' <http://statements.qld.gov.au/Statement/ld/73967>, 13 March 2011
- ³⁰² The Honorable Stirling Hinchcliffe MP, Minister for Employment, Skills and Mining, Media Statement, 'Surat Basin Engagement Committee Announced,' <http://statements.qld.gov.au/Statement/ld/73967>, 13 March 2011
- ³⁰³ Christie, T., 'Resolving the coal seam gas crisis through proper public participation – Coal seam gas, agriculture and the environment: is co-existence impossible or inevitable?' *Independent Australia*, <http://www.independentaustalia.net/2011/australian-identity/queensland/resolving-the-csg-crisis-through-proper-public-participation/>, 29 May 2011
- ³⁰⁴ Christie, T., 'Resolving the coal seam gas crisis through proper public participation – Coal seam gas, agriculture and the environment: is co-existence impossible or inevitable?' *Independent Australia*, <http://www.independentaustalia.net/2011/australian-identity/queensland/resolving-the-csg-crisis-through-proper-public-participation/>, 29 May 2011
- ³⁰⁵ Sherry R. Arnstein, 'A Ladder of Citizen Participation' (1969) 35 *Journal of American Institute of Planner* 216-224
- ³⁰⁶ See the Senate, Rural Affairs and Transport References Committee, 'Management of the Murray Darling Basin, Interim Report: the impact of mining coal seam gas on the management of the Murray Darling Basin,' Commonwealth of Australia, www.aph.gov.au/.../Senate_Committees?url.../interim_report/report, November 2011
- ³⁰⁷ See the Senate, Rural Affairs and Transport References Committee, 'Management of the Murray Darling Basin' Commonwealth of

Australia; http://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Rural_and_Regional_Affairs_and_Transport/Completed%20inquiries/2012-13/mdb/report/index, March 2013.

³⁰⁸ Bob Meinig, 'Public Hearings: When and How to Hold Them', Municipal Research and Services Center of Washington Publications, MRSC Briefs, August 1998 (<http://www.mrsc.org/focuspub/hearings.aspx>)

³⁰⁹ Sherry R. Arnstein, 'A Ladder of Citizen Participation' (1969) 35 *Journal of American Institute of Planner* 216-224

³¹⁰ See the Senate, Rural Affairs and Transport References Committee, 'Management of the Murray Darling Basin, Interim Report: the impact of mining coal seam gas on the management of the Murray Darling Basin,' Commonwealth of Australia, www.aph.gov.au/.../Senate_Committees?url.../interim_report/report, November 2011

³¹¹ Section 535 of the *Petroleum and Gas (Production and Safety) Act 2004* (Qld)

³¹² Sections 536, 536A and 537 of the *Petroleum and Gas (Production and Safety) Act 2004* (Qld)

³¹³ Sections 537A, 537AB and 734E of the *Petroleum and Gas (Production and Safety) Act 2004* (Qld)

³¹⁴ Sections 537B, 537C and 537D of the *Petroleum and Gas (Production and Safety) Act 2004* (Qld)

³¹⁵ Senate, Rural Affairs and Transport References Committee, 'Management of the Murray Darling Basin, Interim Report: the impact of mining coal seam gas on the management of the Murray Darling Basin,' Commonwealth of Australia, www.aph.gov.au/.../Senate_Committees?url.../interim_report/report, November 2011

³¹⁶ Senate, Rural Affairs and Transport References Committee, 'Management of the Murray Darling Basin, Interim Report: the impact of mining coal seam gas on the management of the Murray Darling Basin,' Commonwealth of Australia, www.aph.gov.au/.../Senate_Committees?url.../interim_report/report, November 2011

³¹⁷ Senate, Rural Affairs and Transport References Committee, 'Management of the Murray Darling Basin, Interim Report: the impact of mining coal seam gas on the management of the Murray Darling Basin,' Commonwealth of Australia, www.aph.gov.au/.../Senate_Committees?url.../interim_report/report, November 2011

³¹⁸ Senate, Rural Affairs and Transport References Committee, 'Management of the Murray Darling Basin, Interim Report: the impact of mining coal seam gas on the management of the Murray Darling Basin,' Commonwealth of Australia, www.aph.gov.au/.../Senate_Committees?url.../interim_report/report, November 2011

³¹⁹ Department of State Development, Infrastructure and Planning, *State Planning Policy*, December 2013: <http://www.dsdp.qld.gov.au/resources/policy/state-planning/state-planning-policy.pdf>

³²⁰ Allens Linklaters, Client Update: Queensland Consolidates State Interests in Land Use Planning and Development, 3 December 2013: <http://www.allens.com.au/pubs/env/cuenv3dec13.htm>

³²¹ Clayton Utz insights, [One policy to rule them all: Queensland's single State Planning Policy](http://www.claytonutz.com.au/publications/edition/9_may_2013/20130509/one_policy_to_rule_them_all_queenlands_single_state_planning_policy.page), May 2013: http://www.claytonutz.com.au/publications/edition/9_may_2013/20130509/one_policy_to_rule_them_all_queenlands_single_state_planning_policy.page

³²² See Santos, <http://www.santos.com/coal-seam-gas.aspx>, 2012

³²³ Christie, T., 'Resolving the coal seam gas crisis through proper public participation – Coal seam gas, agriculture and the environment: is co-existence impossible or inevitable?' *Independent Australia*, <http://www.independentaustalia.net/2011/australian-identity/queensland/resolving-the-csg-crisis-through-proper-public-participation/>, 29 May 2011

³²⁴ Thomas, I., and Elliott, M., Environmental Impact Assessment in Australia: Theory and Practice, *The Federal Press*, 2005, 4th edition

³²⁵ Thomas, I., and Elliott, M., Environmental Impact Assessment in Australia: Theory and Practice, *The Federal Press*, 2005, 4th edition

³²⁶ Thomas, I., and Elliott, M., Environmental Impact Assessment in Australia: Theory and Practice, *The Federal Press*, 2005, 4th edition

-
- ³²⁷ Thomas and Elliott and Ward, 1976, 'Education requirements for impact review,' in O'Riordan and Hey, *Environmental Impact Assessment*, Saxon House, Farnborough
- ³²⁸ Thomas, I., and Elliott, M., *Environmental Impact Assessment in Australia: Theory and Practice*, *The Federal Press*, 2005, 4th edition and M. Husain Sadar and William J. Stolte, 'An Overview of the Canadian Experience in Environmental Impact Assessment,' *Professional Practice*, Volume 14, June 1996
- ³²⁹ Thomas, I., and Elliott, M., *Environmental Impact Assessment in Australia: Theory and Practice*, *The Federal Press*, 2005, 4th edition and M. Husain Sadar and William J. Stolte, 'An Overview of the Canadian Experience in Environmental Impact Assessment,' *Professional Practice*, Volume 14, June 1996
- ³³⁰ Thomas, I., and Elliott, M., *Environmental Impact Assessment in Australia: Theory and Practice*, *The Federal Press*, 2005, 4th edition and M. Husain Sadar and William J. Stolte, 'An Overview of the Canadian Experience in Environmental Impact Assessment,' *Professional Practice*, Volume 14, June 1996
- ³³¹ Olusegun A. Ogunba, 'EIA systems in Nigeria: Evolution, current practice and shortcomings,' *Environmental Impact Assessment Review* 24 (2004) 643–660
- ³³² New South Wales government, 'Strategic Regional Land Use Policy Delivery,' Frequently Asked Questions, March 2012
- ³³³ New South Wales government, 'Strategic Regional Land Use Policy Delivery,' Frequently Asked Questions, March 2012
- ³³⁴ New South Wales government, 'Strategic Regional Land Use Policy Delivery,' Frequently Asked Questions, March 2012
- ³³⁵ New South Wales government, 'Strategic Regional Land Use Policy Delivery,' Frequently Asked Questions, March 2012, p. 3
- ³³⁶ 'NSW land use rules create less certainty, NSW Minerals Council says' *Australian Mining*, 7 March 2012 and 'The Plains protected under mining policy,' *Namoi Valley Independent*, 8 March 2012
- ³³⁷ 'NSW land use rules create less certainty, NSW Minerals Council says' *Australian Mining*, 7 March 2012
- ³³⁸ Judith Petts, *Handbook of Environmental Impact Assessment*, June 1999, Blackwell Science
- ³³⁹ Judith Petts, *Handbook of Environmental Impact Assessment*, June 1999, Blackwell Science
- ³⁴⁰ Judith Petts, *Handbook of Environmental Impact Assessment*, June 1999, Blackwell Science
- ³⁴¹ Ali Memon, 'Devolution of environmental regulation: EIA in Malaysia' *UNEP EIA Training resource Manual*, 45.
- ³⁴² See Southern African Institute for Environmental Assessment, <http://www.saiea.com/>, 2009
- ³⁴³ See Southern African Institute for Environmental Assessment, <http://www.saiea.com/>, 2009
- ³⁴⁴ See Southern African Institute for Environmental Assessment, <http://www.saiea.com/>, 2009
- ³⁴⁵ See Southern African Institute for Environmental Assessment, <http://www.saiea.com/>, 2009
- ³⁴⁶ Department of the Environment, Water, Heritage and the Arts, 'Strategic Assessment under the EPBC Act' <http://www.environment.gov.au/epbc/publications/pubs/strategic-assessment.pdf> accessed 29 November 2012.
- ³⁴⁷ Department of the Environment, Water, Heritage and the Arts, 'Strategic Assessment under the EPBC Act' <http://www.environment.gov.au/epbc/publications/pubs/strategic-assessment.pdf> accessed 29 November 2012.
- ³⁴⁸ Department of the Environment, Water, Heritage and the Arts, 'Strategic Assessment under the EPBC Act' <http://www.environment.gov.au/epbc/publications/pubs/strategic-assessment.pdf> accessed 29 November 2012.
- ³⁴⁹ Gregory, R. Ohlson, D. and Arvai, J. Deconstructing adaptive management: criteria for applications to environmental management. 2006. *Ecological Applications* 16(6) pp2411-2425.

-
- ³⁵⁰ Gregory, R. Ohlson, D. and Arvai, J. Deconstructing adaptive management: criteria for applications to environmental management. 2006. *Ecological Applications* 16(6) pp2411-2425.
- ³⁵¹ Holly Doremus et al. Making good use of adaptive management. 2011. Centre for Progressive Reform Electronic copy available at: <http://ssrn.com/abstract=1808106>.
- ³⁵² Swayne, Nicola, 'Regulating coal seam gas in Queensland: Lessons in an adaptive environmental management approach?' (2012) 29 *Environmental Planning and Law Journal* 163
- ³⁵³ Halbert, C. L. How Adaptive is Adaptive Management? Implementing Adaptive Management in Washington State and British Columbia. 1993. *Reviews in Fisheries Science*. 1: 3
- ³⁵⁴ Section 3 of the *Fisheries Management Act 1991* (Cth)
- ³⁵⁵ Australian Government Department of Agriculture Fisheries and Forestry, 'Commonwealth Fisheries Harvest Strategy Policy and Guidelines,' 2007.
- ³⁵⁶ Section 3 of the *Fisheries Management Act 1991* (Cth) sets out objectives that must be pursued in the implementation of the Act
- ³⁵⁷ Australian Government Department of Agriculture Fisheries and Forestry, 'Commonwealth Fisheries Harvest Strategy Policy and Guidelines,' 2007
- ³⁵⁸ See for example Part 1.5 - Objectives of the *Eastern Tuna and Billfish Fisheries Management Plan 2010*
- ³⁵⁹ Australian Government Department of Agriculture Fisheries and Forestry, 'Commonwealth Fisheries Harvest Strategy Policy and Guidelines,' 2007.
- ³⁶⁰ Australian Government Department of Agriculture Fisheries and Forestry, 'Commonwealth Fisheries Harvest Strategy Policy and Guidelines,' 2007
- ³⁶¹ R.W. Kates et al, 'Sustainability Science,' *Science* 292, No. 5517, 21 April 2001, 641-642 at 641, quotes in Karl, Susskind and Wallace, 'A Dialogue not a Diatribe: Effective Integration of Science and Policy through Joint Fact Finding,' (2007) 49(1) *Environment* 20
- ³⁶² Norman Schultz, Joint Fact Finding (2003) Beyond Intractability <http://www.beyondintractability.org/node/2655> at 22 February 2012
- ³⁶³ Hermann Karl, Lawrence Susskind and Katherine Wallace 'A Dialogue, not a Diatribe: Effective Integration of Science and Policy through Joint Fact Finding' (2007) 49(1) *Environment* 20.
- ³⁶⁴ Hermann Karl, Lawrence Susskind and Katherine Wallace 'A Dialogue, not a Diatribe: Effective Integration of Science and Policy through Joint Fact Finding' (2007) 49(1) *Environment* 20.
- ³⁶⁵ John Ehrman and Barbara Stinson, 'Joint Fact-Finding and the Use of Technical Experts' in Susskind L, McKearnan S, Thomas-Larmer J (eds.) *The Consensus Building Handbook* (1999) 2, 2.
- ³⁶⁶ Norman Schultz, Joint Fact Finding (2003) Beyond Intractability <http://www.beyondintractability.org/node/2655> at 22 February 2012
- ³⁶⁷ Hermann Karl, Lawrence Susskind and Katherine Wallace 'A Dialogue, not a Diatribe: Effective Integration of Science and Policy through Joint Fact Finding' (2007) 49(1) *Environment* 20.
- ³⁶⁸ Norman Schultz, Joint Fact Finding (2003) Beyond Intractability <http://www.beyondintractability.org/node/2655> at 22 February 2012
- ³⁶⁹ Giorgos Kallis, Michael Kiparsky, Richard Norgaard 'Collaborative governance and adaptive management: Lessons from California's CALFED Water Program (2009) *Environmental Science & Policy* 12, 631-643.
- ³⁷⁰ Scott McCreary, John Gamman and Bennet Brooks 'Refining and Testing Joint Fact-Finding for Environmental Dispute Resolution: Ten Years of Success' (2001) 18(4) *Mediation Quarterly* 329, 330.
- ³⁷¹ Richard Norgaard, Giorgos Kallis and Michael Kiparsky, 'Collectively engaging complex socio-ecological systems: re-envisioning science, governance and the California Delta,' (2008) 12 *Environmental Science and Policy*, 644 - 652

-
- ³⁷² Richard Norgaard, Giorgos Kallis and Michael Kiparsky, 'Collectively engaging complex socio-ecological systems: re-envisioning science, governance and the California Delta,' (2008) 12 *Environmental Science and Policy*, 644 - 652
- ³⁷³ Richard Norgaard, Giorgos Kallis and Michael Kiparsky, 'Collectively engaging complex socio-ecological systems: re-envisioning science, governance and the California Delta,' (2008) 12 *Environmental Science and Policy*, 644 - 652
- ³⁷⁴ Scott McCreary, John Gamman and Bennet Brooks 'Refining and Testing Joint Fact-Finding for Environmental Dispute Resolution: Ten Years of Success' (2001) 18(4) *Mediation Quarterly* 329, 330.
- ³⁷⁵ Richard Norgaard, Giorgos Kallis and Michael Kiparsky, 'Collectively engaging complex socio-ecological systems: re-envisioning science, governance and the California Delta,' (2008) 12 *Environmental Science and Policy*, 644 - 652
- ³⁷⁶ Richard Norgaard, Giorgos Kallis and Michael Kiparsky, 'Collectively engaging complex socio-ecological systems: re-envisioning science, governance and the California Delta,' (2008) 12 *Environmental Science and Policy*, 644 - 652
- ³⁷⁷ Richard Norgaard, Giorgos Kallis and Michael Kiparsky, 'Collectively engaging complex socio-ecological systems: re-envisioning science, governance and the California Delta,' (2008) 12 *Environmental Science and Policy*, 644 - 652
- ³⁷⁸ Richard Norgaard, Giorgos Kallis and Michael Kiparsky, 'Collectively engaging complex socio-ecological systems: re-envisioning science, governance and the California Delta,' (2008) 12 *Environmental Science and Policy*, 644 - 652
- ³⁷⁹ Innes et al 2006, 2007,
- ³⁸⁰ Freeman and Farber, 2005
- ³⁸¹ Ibid, p 632, Hundley, 2001
- ³⁸² Richard Norgaard, Giorgos Kallis and Michael Kiparsky, 'Collectively engaging complex socio-ecological systems: re-envisioning science, governance and the California Delta,' (2008) 12 *Environmental Science and Policy*, 644 - 652
- ³⁸³ Richard Norgaard, Giorgos Kallis and Michael Kiparsky, 'Collectively engaging complex socio-ecological systems: re-envisioning science, governance and the California Delta,' (2008) 12 *Environmental Science and Policy*, 644 - 652
- ³⁸⁴ Richard Norgaard, Giorgos Kallis and Michael Kiparsky, 'Collectively engaging complex socio-ecological systems: re-envisioning science, governance and the California Delta,' (2008) 12 *Environmental Science and Policy*, 644 - 652
- ³⁸⁵ Reef and Rainforest Research Centre, Factsheet - 'Introducing the Reef and Rainforest Research Centre,' www.rrrc.org.au/about/index.html
- ³⁸⁶ Reef and Rainforest Research Centre, Factsheet - 'Introducing the Reef and Rainforest Research Centre,' www.rrrc.org.au/about/index.html
- ³⁸⁷ Reef and Rainforest Research Centre, Factsheet - 'Introducing the Reef and Rainforest Research Centre,' www.rrrc.org.au/about/index.html
- ³⁸⁸ Reef and Rainforest Research Centre, Factsheet - 'Introducing the Reef and Rainforest Research Centre,' www.rrrc.org.au/about/index.html
- ³⁸⁹ Healthy Rivers Commission, 'Healthy Rivers for Tomorrow,' www.dpi.nsw.gov.au/.../HRC_Healthy-Rivers-for-Tomorrow_2003, November 2003
- ³⁹⁰ Natural Resources Commission Annual Report, 2009-2010, <http://pandora.nla.gov.au/tep/65363>
- ³⁹¹ Natural Resources Commission Annual Report, 2009-2010, <http://pandora.nla.gov.au/tep/65363>
- ³⁹² Natural Resources Commission Annual Report, 2009-2010, <http://pandora.nla.gov.au/tep/65363>
- ³⁹³ Natural Resources Commission Annual Report, 2009-2010, <http://pandora.nla.gov.au/tep/65363>
- ³⁹⁴ Natural Resources Commission Annual Report, 2009-2010, <http://pandora.nla.gov.au/tep/65363>
- ³⁹⁵ Natural Resources Commission Annual Report, 2009-2010, <http://pandora.nla.gov.au/tep/65363>

³⁹⁶ Gareth Cook, How crowdsourcing is changing science,' The Boston Globe, <http://www.bostonglobe.com/ideas/2011/11/11/how-crowdsourcing-changing-science/dWL4DGWMq2YonHKC8uOXZN/story.htm>, 11 November 2011

³⁹⁷ Gareth Cook, How crowdsourcing is changing science,' The Boston Globe, <http://www.bostonglobe.com/ideas/2011/11/11/how-crowdsourcing-changing-science/dWL4DGWMq2YonHKC8uOXZN/story.htm>, 11 November 2011

³⁹⁸ Gareth Cook, How crowdsourcing is changing science,' The Boston Globe, <http://www.bostonglobe.com/ideas/2011/11/11/how-crowdsourcing-changing-science/dWL4DGWMq2YonHKC8uOXZN/story.htm>, 11 November 2011

³⁹⁹ Gareth Cook, How crowdsourcing is changing science,' The Boston Globe, <http://www.bostonglobe.com/ideas/2011/11/11/how-crowdsourcing-changing-science/dWL4DGWMq2YonHKC8uOXZN/story.htm>, 11 November 2011

⁴⁰⁰ Gareth Cook, How crowdsourcing is changing science,' The Boston Globe, <http://www.bostonglobe.com/ideas/2011/11/11/how-crowdsourcing-changing-science/dWL4DGWMq2YonHKC8uOXZN/story.htm>, 11 November 2011

⁴⁰¹ Centre for Social Responsibility in Mining & Centre for Water in the Minerals Industry, Sustainable Minerals Institute, University of Queensland (2010) *Cumulative Impacts: A Good Practice Guide for the Australian Coal Mining Industry*, 1.

⁴⁰² The report was produced by two the Centre for Social Responsibility in Mining and the Centre for Water in the Minerals Industry, research centres within the Sustainable Minerals Institute.

⁴⁰³ Centre for Social Responsibility in Mining & Centre for Water in the Minerals Industry, Sustainable Minerals Institute, University of Queensland (2010) *Cumulative Impacts: A Good Practice Guide for the Australian Coal Mining Industry*, 2.

⁴⁰⁴ Centre for Social Responsibility in Mining & Centre for Water in the Minerals Industry, Sustainable Minerals Institute, University of Queensland (2010) *Cumulative Impacts: A Good Practice Guide for the Australian Coal Mining Industry*, 2.

⁴⁰⁵ Centre for Social Responsibility in Mining & Centre for Water in the Minerals Industry, Sustainable Minerals Institute, University of Queensland (2010) *Cumulative Impacts: A Good Practice Guide for the Australian Coal Mining Industry*, 48-49.

⁴⁰⁶ Centre for Social Responsibility in Mining & Centre for Water in the Minerals Industry, Sustainable Minerals Institute, University of Queensland (2010) *Cumulative Impacts: A Good Practice Guide for the Australian Coal Mining Industry*, 32.

⁴⁰⁷ Centre for Social Responsibility in Mining & Centre for Water in the Minerals Industry, Sustainable Minerals Institute, University of Queensland (2010) *Cumulative Impacts: A Good Practice Guide for the Australian Coal Mining Industry*, 32.

⁴⁰⁸ Centre for Social Responsibility in Mining & Centre for Water in the Minerals Industry, Sustainable Minerals Institute, University of Queensland (2010) *Cumulative Impacts: A Good Practice Guide for the Australian Coal Mining Industry*, 48.

⁴⁰⁹ Centre for Social Responsibility in Mining & Centre for Water in the Minerals Industry, Sustainable Minerals Institute, University of Queensland (2010) *Cumulative Impacts: A Good Practice Guide for the Australian Coal Mining Industry*, 49.

⁴¹⁰ Ibid, p10.

⁴¹¹ Ibid, p4.

⁴¹² Franks, D, Fidler, C, Brereton, D, Vanclay, F and P, Clark. 2009. Leading Practice Strategies for Addressing the Social Impacts of Resource Developments. Centre for Social Responsibility in Mining, Sustainable Minerals Institute, The University of Queensland. Briefing paper for the Department of Employment, Economic Development and Innovation, Queensland Government. November. Brisbane, page 39.

⁴¹³ Ibid, at 40.

⁴¹⁴ Ibid, at 39.

⁴¹⁵ Arrow Energy (2011) *Draft Environmental Impact Statement*, Chapter 28, 1.

⁴¹⁶ Arrow Energy (2011) *Draft Environmental Impact Statement*, Chapter 28, 2.

⁴¹⁷ Arrow Energy (2011) *Draft Environmental Impact Statement*, Chapter 28, 2.

⁴¹⁸ Arrow Energy (2011) *Draft Environmental Impact Statement*, Chapter 28, 20.

⁴¹⁹ *State Development and Public Works Organisation Act 1971* (Qld), s40.

⁴²⁰ *State Development and Public Works Organisation Act 1971* (Qld), s10.

⁴²¹ *State Development and Public Works Organisation Act 1971* (Qld), s10.

⁴²² Wiseman et al, 'Measuring wellbeing, engaging communities: Sustainable strategies for the development of community wellbeing indicators by Victorian local governments and their communities,' *Discussion Paper*, Victorian Community Indicators Project, August 2005

⁴²³ Wiseman et al, 'Measuring wellbeing, engaging communities: Sustainable strategies for the development of community wellbeing indicators by Victorian local governments and their communities,' *Discussion Paper*, Victorian Community Indicators Project, August 2005

⁴²⁴ Wiseman et al, 'Measuring wellbeing, engaging communities: Sustainable strategies for the development of community wellbeing indicators by Victorian local governments and their communities,' *Discussion Paper*, Victorian Community Indicators Project, August 2005

⁴²⁵ Wiseman et al, 'Measuring wellbeing, engaging communities: Sustainable strategies for the development of community wellbeing indicators by Victorian local governments and their communities,' *Discussion Paper*, Victorian Community Indicators Project, August 2005

⁴²⁶ Wiseman et al, 'Measuring wellbeing, engaging communities: Sustainable strategies for the development of community wellbeing indicators by Victorian local governments and their communities,' *Discussion Paper*, Victorian Community Indicators Project, August 2005

⁴²⁷ McGee et al, 'Legal Frameworks for Citizen Participation: Synthesis Report,' April 2003 p. 11

⁴²⁸ McGee et al, 'Legal Frameworks for Citizen Participation: Synthesis Report,' April 2003

⁴²⁹ McGee et al, 'Legal Frameworks for Citizen Participation: Synthesis Report,' April 2003

⁴³⁰ McGee et al, 'Legal Frameworks for Citizen Participation: Synthesis Report,' April 2003

⁴³¹ Freeman, J. (1997) 'Collaborative governance in the administrative state', *UCLA Law Review*, 45:1

⁴³² Bregman, E. & Jacobson, A. (1994), 'Environmental Performance Review: Self-Regulation in Environmental Law', in *Environmental Law and Ecological Responsibility: The concept and practice of ecological self-organization*, 207.

⁴³³ Gaventa, Triumph, Deficit or Contestation? Deepening the Deepening Democracy Debate, 2006, IDS Working Paper, p. 264

⁴³⁴ Gaventa, Triumph, Deficit or Contestation? Deepening the Deepening Democracy Debate, 2006, IDS Working Paper p. 264

⁴³⁵ Gaventa, Triumph, Deficit or Contestation? Deepening the Deepening Democracy Debate, 2006, IDS Working Paper 264

⁴³⁶ McGee et al, 'Legal Frameworks for Citizen Participation: Synthesis Report,' April 2003

⁴³⁷ Oliver, Dr Peter, *Role of Government Coordination in Civic Engagement: Experience of Queensland, Australia*, Research paper, page 10. Globescan, 2005

⁴³⁸ UnitingCare Queensland, op cit, p. 6.

⁴³⁹ Ibid, page 1.

⁴⁴⁰ Ibid p.2.

⁴⁴¹ Kallis, Kiparsky and Norgaard.

⁴⁴² Fung and Wright, *Deepening Democracy: Innovations in Empowered Participatory Governance*, *Politics and Society*, 2001 and Gaventa, *Triumph, Deficit or Contestation? Deepening the Deepening Democracy Debate*, 2006, IDS Working Paper 264

⁴⁴³ Fung and Wright, *Deepening Democracy: Innovations in Empowered Participatory Governance*, *Politics and Society*, 2001 and Gaventa, *Triumph, Deficit or Contestation? Deepening the Deepening Democracy Debate*, 2006, IDS Working Paper 264

⁴⁴⁴ Fung and Wright, *Deepening Democracy: Innovations in Empowered Participatory Governance*, *Politics and Society*, 2001

⁴⁴⁵ Fung and Wright, *Deepening Democracy: Innovations in Empowered Participatory Governance*, *Politics and Society*, 2001, p. 12

⁴⁴⁶ Holley, C., 'New Environmental Governance,' Australian National University, June 2008, pp.29-36

⁴⁴⁷ Holley, C., 'New Environmental Governance,' Australian National University, June 2008, pp.29-36

⁴⁴⁸ United States Government, *Habitat Conservation Planning and Incidental Take Permit Processing Handbook*, Chapter 3, Pre-Application Coordination and Habitat Conservation Plan Development, www.nmfs.noaa.gov/pr/pdfs/laws/hcp_handbook.pdf, 4 November 1996

⁴⁴⁹ United States Government, *Habitat Conservation Planning and Incidental Take Permit Processing Handbook*, Chapter 3, Pre-Application Coordination and Habitat Conservation Plan Development, www.nmfs.noaa.gov/pr/pdfs/laws/hcp_handbook.pdf, 4 November 1996, pp. 3-4

⁴⁵⁰ Fung and Wright, *Deepening Democracy: Innovations in Empowered Participatory Governance*, *Politics and Society*, 2001

⁴⁵¹ Fung and Wright, *Deepening Democracy: Innovations in Empowered Participatory Governance*, *Politics and Society*, 2001, p. 13

⁴⁵² United States Government, *Habitat Conservation Planning and Incidental Take Permit Processing Handbook*, Chapter 3, Pre-Application Coordination and Habitat Conservation Plan Development, www.nmfs.noaa.gov/pr/pdfs/laws/hcp_handbook.pdf, 4 November 1996, pp. 3-4 and 3-5

⁴⁵³ See the former Department of Environment and Resource Management, 'State Rural Leasehold Land Strategy, http://www.derm.qld.gov.au/land/state/rural_leasehold/strategy.html, 11 September 2012 and Coonan, G., 'Delbessie Agreement – Brisbane Rural Seminar Presentation, www.htw.com.au, September 2008

⁴⁵⁴ See the former Department of Environment and Resource Management, 'State Rural Leasehold Land Strategy, http://www.derm.qld.gov.au/land/state/rural_leasehold/strategy.html, 11 September 2012 and Coonan, G., 'Delbessie Agreement – Brisbane Rural Seminar Presentation, www.htw.com.au, September 2008

⁴⁵⁵ See the former Department of Environment and Resource Management, 'State Rural Leasehold Land Strategy, http://www.derm.qld.gov.au/land/state/rural_leasehold/strategy.html, 11 September 2012 and Coonan, G., 'Delbessie Agreement – Brisbane Rural Seminar Presentation, www.htw.com.au, September 2008

⁴⁵⁶ See the former Department of Environment and Resource Management, 'State Rural Leasehold Land Strategy, http://www.derm.qld.gov.au/land/state/rural_leasehold/strategy.html, 11 September 2012 and Coonan, G., 'Delbessie Agreement – Brisbane Rural Seminar Presentation, www.htw.com.au, September 2008

-
- ⁴⁵⁷ See the former Department of Environment and Resource Management, 'State Rural Leasehold Land Strategy, http://www.derm.qld.gov.au/land/state/rural_leasehold/strategy.html, 11 September 2012 and Coonan, G., 'Delbessie Agreement – Brisbane Rural Seminar Presentation, www.htw.com.au, September 2008
- ⁴⁵⁸ See the former Department of Environment and Resource Management, 'State Rural Leasehold Land Strategy, http://www.derm.qld.gov.au/land/state/rural_leasehold/strategy.html, 11 September 2012 and Coonan, G., 'Delbessie Agreement – Brisbane Rural Seminar Presentation, www.htw.com.au, September 2008
- ⁴⁵⁹ See the former Department of Environment and Resource Management, 'State Rural Leasehold Land Strategy, http://www.derm.qld.gov.au/land/state/rural_leasehold/strategy.html, 11 September 2012 and Coonan, G., 'Delbessie Agreement – Brisbane Rural Seminar Presentation, www.htw.com.au, September 2008
- ⁴⁶⁰ See the former Department of Environment and Resource Management, 'State Rural Leasehold Land Strategy, http://www.derm.qld.gov.au/land/state/rural_leasehold/strategy.html, 11 September 2012 and Coonan, G., 'Delbessie Agreement – Brisbane Rural Seminar Presentation, www.htw.com.au, September 2008
- ⁴⁶¹ Phillips, A., 'Fifty Delbessie agreements signed off and most properties in good condition,' ABC Rural Queensland, <http://www.abc.net.au/rural/qld/content/2011/04/s3185160.htm>, 7 April 2011
- ⁴⁶² Phillips, A., 'Fifty Delbessie agreements signed off and most properties in good condition,' ABC Rural Queensland, <http://www.abc.net.au/rural/qld/content/2011/04/s3185160.htm>, 7 April 2011
- ⁴⁶³ Phillips, A., 'Fifty Delbessie agreements signed off and most properties in good condition,' ABC Rural Queensland, <http://www.abc.net.au/rural/qld/content/2011/04/s3185160.htm>, 7 April 2011
- ⁴⁶⁴ Fung and Wright, *Deepening Democracy: Innovations in Empowered Participatory Governance*, *Politics and Society*, 2001
- ⁴⁶⁵ Fung and Wright, *Deepening Democracy: Innovations in Empowered Participatory Governance*, *Politics and Society*, 2001
- ⁴⁶⁶ Fung and Wright, *Deepening Democracy: Innovations in Empowered Participatory Governance*, *Politics and Society*, 2001
- ⁴⁶⁷ Fung and Wright, *Deepening Democracy: Innovations in Empowered Participatory Governance*, *Politics and Society*, 2001
- ⁴⁶⁸ Fung and Wright, *Deepening Democracy: Innovations in Empowered Participatory Governance*, *Politics and Society*, 2001
- ⁴⁶⁹ City of Canada Bay, *Bayside Brief*, Issue 69, June 2012, p. 3.
- ⁴⁷⁰ City of Canada Bay, *Bayside Brief*, Issue 68, April 2012, p. 7.
- ⁴⁷¹ City of Canada Bay, *Bayside Brief*, Issue 70 August 2012, p. 7.
- ⁴⁷² For more information, see the New Democracy Foundation website at <http://www.newdemocracy.com.au> .
- ⁴⁷³ City of Canada Bay, *Bayside Brief*, Issue 68, April 2012, p. 6. See, also, Canada Bay Citizens' Panel Final Report, 2012, <http://www.newdemocracy.com.au/docs/Canada%20Bay%20Citizens%20Panel%202012%20Recommendation%2020120825.pdf>
- ⁴⁷⁴ David M. Konisky, Thomas C. Beierle, 'Innovations in Public Participation and Environmental Decision Making: Examples from the Great Lakes Region' (2001) 14 *Society and Natural Resources* 815-826
- ⁴⁷⁵ David M. Konisky, Thomas C. Beierle, 'Innovations in Public Participation and Environmental Decision Making: Examples from the Great Lakes Region' (2001) 14 *Society and Natural Resources* 815-826
- ⁴⁷⁶ David M. Konisky, Thomas C. Beierle, 'Innovations in Public Participation and Environmental Decision Making: Examples from the Great Lakes Region' (2001) 14 *Society and Natural Resources* 815-826
- ⁴⁷⁷ David M. Konisky, Thomas C. Beierle, 'Innovations in Public Participation and Environmental Decision Making: Examples from the Great Lakes Region' (2001) 14 *Society and Natural Resources* 815-826

⁴⁷⁸ David M. Konisky, Thomas C. Beierle, 'Innovations in Public Participation and Environmental Decision Making: Examples form the Great Lakes Region' (2001) 14 *Society and Natural Resources* 815-826

⁴⁷⁹ David M. Konisky, Thomas C. Beierle, 'Innovations in Public Participation and Environmental Decision Making: Examples form the Great Lakes Region' (2001) 14 *Society and Natural Resources* 815-826

⁴⁸⁰ David M. Konisky, Thomas C. Beierle, 'Innovations in Public Participation and Environmental Decision Making: Examples form the Great Lakes Region' (2001) 14 *Society and Natural Resources* 815-826

⁴⁸¹ David M. Konisky, Thomas C. Beierle, 'Innovations in Public Participation and Environmental Decision Making: Examples form the Great Lakes Region' (2001) 14 *Society and Natural Resources* 815-826

⁴⁸² David M. Konisky, Thomas C. Beierle, 'Innovations in Public Participation and Environmental Decision Making: Examples form the Great Lakes Region' (2001) 14 *Society and Natural Resources* 815-826

⁴⁸³ Bruce Comly French, 'More Effective Citizen Participation in Environmental Decision-Making' (1992-1993) 24 *University of Toledo Law Review* 389

⁴⁸⁴ Bruce Comly French, 'More Effective Citizen Participation in Environmental Decision-Making' (1992-1993) 24 *University of Toledo Law Review* 389

⁴⁸⁵ Bruce Comly French, 'More Effective Citizen Participation in Environmental Decision-Making' (1992-1993) 24 *University of Toledo Law Review* 389

⁴⁸⁶ Bruce Comly French, 'More Effective Citizen Participation in Environmental Decision-Making' (1992-1993) 24 *University of Toledo Law Review* 389

⁴⁸⁷ Bruce Comly French, 'More Effective Citizen Participation in Environmental Decision-Making' (1992-1993) 24 *University of Toledo Law Review* 389

⁴⁸⁸ Bruce Comly French, 'More Effective Citizen Participation in Environmental Decision-Making' (1992-1993) 24 *University of Toledo Law Review* 389

⁴⁸⁹ Bruce Comly French, 'More Effective Citizen Participation in Environmental Decision-Making' (1992-1993) 24 *University of Toledo Law Review* 389

⁴⁹⁰ Bruce Comly French, 'More Effective Citizen Participation in Environmental Decision-Making' (1992-1993) 24 *University of Toledo Law Review* 389

⁴⁹¹ Dakota County Office of Planning, 1998 and Bruce Comly French, 'More Effective Citizen Participation in Environmental Decision-Making' (1992-1993) 24 *University of Toledo Law Review* 389

⁴⁹² See for example, the United States Institute for Environmental Conflict Resolution website at <http://www.ecr.gov>. Note that regulatory negotiation is also referred to negotiated rule making, policy dialogue and shared decision making.

⁴⁹³ Daniel J. Fiorino, 'Regulatory Negotiation as a Policy Process' (1988) Volume 48, issue 4, *Public Administration Review* 764-772

⁴⁹⁴ Daniel J. Fiorino, 'Regulatory Negotiation as a Policy Process' (1988) Volume 48, issue 4, *Public Administration Review* 764-772

⁴⁹⁵ Daniel J. Fiorino, 'Regulatory Negotiation as a Policy Process' (1988) Volume 48, issue 4, *Public Administration Review* 764-772

⁴⁹⁶ Sara Pirk, 'Expanding Public Participation in Environmental Justice: Methods, Legislation, Litigation and Beyond' (2002) 17 *Journal of Environmental Law and Litigation* 207 and Daniel J. Fiorino, 'Regulatory Negotiation as a Policy Process' (1988) vol 48, issue 4, *Public Administration Review* 764-772

⁴⁹⁷ Daniel J. Fiorino, 'Regulatory Negotiation as a Policy Process' (1988) Volume 48, issue 4, *Public Administration Review* 764-772

⁴⁹⁸ Daniel J. Fiorino, 'Regulatory Negotiation as a Policy Process' (1988) vol 48, issue 4, *Public Administration Review* 764-772

-
- ⁴⁹⁹ Sara Pirk, 'Expanding Public Participation in Environmental Justice: Methods, Legislation, Litigation and Beyond' (2002) 17 *Journal of Environmental Law and Litigation* 207
- ⁵⁰⁰ Sara Pirk, 'Expanding Public Participation in Environmental Justice: Methods, Legislation, Litigation and Beyond' (2002) 17 *Journal of Environmental Law and Litigation* 207
- ⁵⁰¹ Sara Pirk, 'Expanding Public Participation in Environmental Justice: Methods, Legislation, Litigation and Beyond' (2002) 17 *Journal of Environmental Law and Litigation* 207
- ⁵⁰² Sara Pirk, 'Expanding Public Participation in Environmental Justice: Methods, Legislation, Litigation and Beyond' (2002) 17 *Journal of Environmental Law and Litigation* 207
- ⁵⁰³ Sara Pirk, 'Expanding Public Participation in Environmental Justice: Methods, Legislation, Litigation and Beyond' (2002) 17 *Journal of Environmental Law and Litigation* 207
- ⁵⁰⁴ *Treaty on the European Union*, 2002 Article 3b
- ⁵⁰⁵ Jordan, A. and Jeppesen, T. (2000) 'EU Environmental Policy: Adapting to the Principle of Subsidiarity' *European Environment*, Volume 10, p. 69
- ⁵⁰⁶ Kees van Kersbergen and Bertjan, V. (2004) 'Subsidiarity as a Principle of Governance in the European Union' *Comparative European Politics* 2:142-162.
- ⁵⁰⁷ Kostov, S. (2008) 'Increasing the Role of Local Governments in Infrastructure Projects in Russia and Bulgaria as a Tool for Environmental Protection' *William and Mary Environmental and Policy Review*, 33: 349
- ⁵⁰⁸ Kostov, S. (2008) 'Increasing the Role of Local Governments in Infrastructure Projects in Russia and Bulgaria as a Tool for Environmental Protection' *William and Mary Environmental and Policy Review*, 33: 349.
- ⁵⁰⁹ Kostov, S. (2008) 'Increasing the Role of Local Governments in Infrastructure Projects in Russia and Bulgaria as a Tool for Environmental Protection' *William and Mary Environmental and Policy Review*, 33: 349.
- ⁵¹⁰ Kostov, S. (2008) 'Increasing the Role of Local Governments in Infrastructure Projects in Russia and Bulgaria as a Tool for Environmental Protection' *William and Mary Environmental and Policy Review*, 33: 349.
- ⁵¹¹ Kostov, S. (2008) 'Increasing the Role of Local Governments in Infrastructure Projects in Russia and Bulgaria as a Tool for Environmental Protection' *William and Mary Environmental and Policy Review*, 33: 349
- ⁵¹² Kostov, S. (2008) 'Increasing the Role of Local Governments in Infrastructure Projects in Russia and Bulgaria as a Tool for Environmental Protection' *William and Mary Environmental and Policy Review*, 33: 349
- ⁵¹³ Ute Collier (1997), 'Local authorities and climate protection in the European union: Putting subsidiarity into practice?', *Local Environment*, 2:1, 39-57
- ⁵¹⁴ Unberto Janin Rivolin, "Cohesion and subsidiarity: Towards good territorial governance in Europe", 2005, *The Town Planning Review*, vol. 76, no. 1, pp. 93-106
- ⁵¹⁵ Unberto Janin Rivolin, "Cohesion and subsidiarity: Towards good territorial governance in Europe", 2005, *The Town Planning Review*, vol. 76, no. 1, pp. 93-106
- ⁵¹⁶ Kostov, S. (2008) 'Increasing the Role of Local Governments in Infrastructure Projects in Russia and Bulgaria as a Tool for Environmental Protection' *William and Mary Environmental and Policy Review*, 33: 349
- ⁵¹⁷ Kostov, S. (2008) 'Increasing the Role of Local Governments in Infrastructure Projects in Russia and Bulgaria as a Tool for Environmental Protection' *William and Mary Environmental and Policy Review*, 33: 349.
- ⁵¹⁸ Kees van Kersbergen and Bertjan, V. (2004) 'Subsidiarity as a Principle of Governance in the European Union' *Comparative European Politics* 2:142-162.
- ⁵¹⁹ *Drinking Water Directive* EEC/80/778, OJ L229, 30 August 1980
- ⁵²⁰ Jordan, A. and Jeppesen, T. (2000) 'EU Environmental Policy: Adapting to the Principle of Subsidiarity' *European Environment* 10 69
- ⁵²¹ Radaelli, C. (2000) 'Governing European Regulation: The Challenges Ahead' *Public Administration* (in press)

-
- ⁵²² Thomas C. Fischer (1994) 'Federalism in the European Community and the United States: A Rose By Any Other Name', *Fordham International Law Journal* 17:389.
- ⁵²³ Jordan, A. (2000) 'The politics of multilevel environmental governance: subsidiarity and environmental policy in the European Union' *Environment and Planning A* 32(7):1307
- ⁵²⁴ Marshall, G. (2008) 'Nesting, subsidiarity, and community-based environmental governance beyond the local level' *International Journal of the Commons* 2(1) 75
- ⁵²⁵ George A. Bermann (1993) 'Subsidiarity and the European Community', *Hastings International and Comparative Law Review*, 17:97.
- ⁵²⁶ James L Huffman (2004) 'Making Environmental Regulation More Adaptive Through Decentralization: The Case For Subsidiarity', *University of Kansas Law Review*, 52(5):1377
- ⁵²⁷ James L Huffman (2004) 'Making Environmental Regulation More Adaptive Through Decentralization: The Case For Subsidiarity', *University of Kansas Law Review*, 52(5):1377
- ⁵²⁸ Ribot, JC, 2002, *Democratic Decentralization of Natural Resources: Institutionalizing Popular Participation*, Washington DC, World Resources Institute
- ⁵²⁹ Kostov, S. (2008) 'Increasing the Role of Local Governments in Infrastructure Projects in Russia and Bulgaria as a Tool for Environmental Protection' *William and Mary Environmental and Policy Review*, 33: 349.
- ⁵³⁰ Kostov, S. (2008) 'Increasing the Role of Local Governments in Infrastructure Projects in Russia and Bulgaria as a Tool for Environmental Protection' *William and Mary Environmental and Policy Review*, 33: 349.
- ⁵³¹ Kostov, S. (2008) 'Increasing the Role of Local Governments in Infrastructure Projects in Russia and Bulgaria as a Tool for Environmental Protection' *William and Mary Environmental and Policy Review*, 33: 349.
- ⁵³² Regional Implementation Working Group, 2005, 'Regional delivery of natural resource management – Moving forward.' Canberra: Natural Resources Management Ministerial Council
- ⁵³³ Regional Implementation Working Group, 2005, 'Regional delivery of natural resource management – Moving forward.' Canberra: Natural Resources Management Ministerial Council
- ⁵³⁴ <http://www.dsdiq.qld.gov.au/resources/plan/darling-downs/darling-downs-regional-plan.pdf>
- ⁵³⁵ Christine Nolan, 'ADR Applications in Planning and Environmental Disputes' (Alternative Dispute Resolution Division, Department of Justice and Attorney-General Queensland).
- ⁵³⁶ See Christine Nolan, 'ADR Applications in Planning and Environmental Disputes' (Alternative Dispute Resolution Division, Department of Justice and Attorney-General Queensland) and Marg O'Donnell, 'The Development and Delivery of Facilitation Services in Queensland 1990-1996' (Report, Legal Ombudsman, Victoria, May 1997).
- ⁵³⁷ See Christine Nolan, 'ADR Applications in Planning and Environmental Disputes' (Alternative Dispute Resolution Division, Department of Justice and Attorney-General Queensland) and Marg O'Donnell, 'The Development and Delivery of Facilitation Services in Queensland 1990-1996' (Report, Legal Ombudsman, Victoria, May 1997).
- ⁵³⁸ See Christine Nolan, 'ADR Applications in Planning and Environmental Disputes' (Alternative Dispute Resolution Division, Department of Justice and Attorney-General Queensland) and Marg O'Donnell, 'The Development and Delivery of Facilitation Services in Queensland 1990-1996' (Report, Legal Ombudsman, Victoria, May 1997).
- ⁵³⁹ See Christine Nolan, 'ADR Applications in Planning and Environmental Disputes' (Alternative Dispute Resolution Division, Department of Justice and Attorney-General Queensland) and Marg O'Donnell, 'The Development and Delivery of Facilitation Services in Queensland 1990-1996' (Report, Legal Ombudsman, Victoria, May 1997).
- ⁵⁴⁰ See Christine Nolan, 'ADR Applications in Planning and Environmental Disputes' (Alternative Dispute Resolution Division, Department of Justice and Attorney-General Queensland) and Marg O'Donnell, 'The Development and Delivery of Facilitation Services in Queensland 1990-1996' (Report, Legal Ombudsman, Victoria, May 1997).
- ⁵⁴¹ See Christine Nolan, 'ADR Applications in Planning and Environmental Disputes' (Alternative Dispute Resolution Division, Department of Justice and Attorney-General Queensland) and Marg O'Donnell, 'The Development and Delivery of Facilitation Services in Queensland 1990-1996' (Report, Legal Ombudsman, Victoria, May 1997).

-
- ⁵⁴² Marg O'Donnell, 'The Development and Delivery of Facilitation Services in Queensland 1990-1996' (Report, Legal Ombudsman, Victoria, May 1997).
- ⁵⁴³ See Christine Nolan, 'ADR Applications in Planning and Environmental Disputes' (Alternative Dispute Resolution Division, Department of Justice and Attorney-General Queensland) and Marg O'Donnell, 'The Development and Delivery of Facilitation Services in Queensland 1990-1996' (Report, Legal Ombudsman, Victoria, May 1997).
- ⁵⁴⁴ Marg O'Donnell, 'The Development and Delivery of Facilitation Services in Queensland 1990-1996' (Report, Legal Ombudsman, Victoria, May 1997).
- ⁵⁴⁵ See Christine Nolan, 'ADR Applications in Planning and Environmental Disputes' (Alternative Dispute Resolution Division, Department of Justice and Attorney-General Queensland) and Marg O'Donnell, 'The Development and Delivery of Facilitation Services in Queensland 1990-1996' (Report, Legal Ombudsman, Victoria, May 1997).
- ⁵⁴⁶ See Christine Nolan, 'ADR Applications in Planning and Environmental Disputes' (Alternative Dispute Resolution Division, Department of Justice and Attorney-General Queensland) and Marg O'Donnell, 'The Development and Delivery of Facilitation Services in Queensland 1990-1996' (Report, Legal Ombudsman, Victoria, May 1997).
- ⁵⁴⁷ See Christine Nolan, 'ADR Applications in Planning and Environmental Disputes' (Alternative Dispute Resolution Division, Department of Justice and Attorney-General Queensland) and Marg O'Donnell, 'The Development and Delivery of Facilitation Services in Queensland 1990-1996' (Report, Legal Ombudsman, Victoria, May 1997).
- ⁵⁴⁸ Christine Nolan, 'ADR Applications In Planning and Environmental Disputes' (Alternative Dispute Resolution Division, Department of Justice and Attorney-General Queensland); Above n 3.
- ⁵⁴⁹ Leigh Robertson, 'Paddington Public Issues Dispute' (Draft Working Paper, Community Justice Program, March 1993).
- ⁵⁵⁰ Feehely, J. 'Tasmanian forestry negotiation: Are we any closer to resolution of forest conflict?' September 2011, *Australian Environment Review*
- ⁵⁵¹ Feehely, J. 'Tasmanian forestry negotiation: Are we any closer to resolution of forest conflict?' September 2011, *Australian Environment Review*
- ⁵⁵² Feehely, J. 'Tasmanian forestry negotiation: Are we any closer to resolution of forest conflict?' September 2011, *Australian Environment Review*
- ⁵⁵³ Feehely, J. 'Tasmanian forestry negotiation: Are we any closer to resolution of forest conflict?' September 2011, *Australian Environment Review*
- ⁵⁵⁴ John S. Applegate, 'Beyond the Usual Suspects: The Use of Citizens Advisory Boards in Environmental Decision Making' (1998) 73 *Indigenous Law Journal* 903, 921.
- ⁵⁵⁵ John S. Applegate, 'Beyond the Usual Suspects: The Use of Citizens Advisory Boards in Environmental Decision Making' (1998) 73 *Indigenous Law Journal* 903, 921.
- ⁵⁵⁶ John S. Applegate, 'Beyond the Usual Suspects: The Use of Citizens Advisory Boards in Environmental Decision Making' (1998) 73 *Indigenous Law Journal* 903, 921.
- ⁵⁵⁷ Sherry R. Arnstein, 'A Ladder of Citizen Participation' (1969) 35 *Journal of American Institute of Planner* 216-224
- ⁵⁵⁸ Sara Pirk, 'Expanding Public Participation in Environmental Justice: Methods, Legislation, Litigation and Beyond' (2002) 17 *Journal of Environmental Law and Litigation* 207
- ⁵⁵⁹ Sara Pirk, 'Expanding Public Participation in Environmental Justice: Methods, Legislation, Litigation and Beyond' (2002) 17 *Journal of Environmental Law and Litigation* 207
- ⁵⁶⁰ Thomas C. Beierle, 'Public Participation in Environmental Decisions: An Evaluation Framework Using Social Goals' (1998) Evaluation Discussion Paper Vol.18, Issue 1, p31
- ⁵⁶¹ Thomas C. Beierle, 'Public Participation in Environmental Decisions: An Evaluation Framework Using Social Goals' (1998) Evaluation Discussion Paper Vol.18, Issue 1, p31

-
- ⁵⁶² Rosemary Lyster, ' (De)regulating the Rural Environment', (2002) Vol 19, No 1 *Environmental and Planning Law Journal* pp34-57
- ⁵⁶³ Thomas C. Beierle, ' Public Participation in Environmental Decisions: An Evaluation Framework Using Social Goals' (1998) Evaluation Discussion Paper Vol.18, Issue 1, p. 31
- ⁵⁶⁴ Thomas C. Beierle, ' Public Participation in Environmental Decisions: An Evaluation Framework Using Social Goals' (1998) Evaluation Discussion Paper Vol.18, Issue 1, p31
- ⁵⁶⁵ Murray Darling Basin Commission, 'Community Advisory Committee of the Murray Darling Basin Ministerial Council,' http://www2.mdbc.gov.au/about/the_mdbc_agreement.html, Undated
- ⁵⁶⁶ Murray Darling Basin Commission, 'Community Advisory Committee of the Murray Darling Basin Ministerial Council,' http://www2.mdbc.gov.au/about/the_mdbc_agreement.html, Undated
- ⁵⁶⁷ Murray Darling Basin Commission, 'Community Advisory Committee of the Murray Darling Basin Ministerial Council,' http://www2.mdbc.gov.au/about/the_mdbc_agreement.html, Undated
- ⁵⁶⁸ Murray Darling Basin Commission, 'Community Advisory Committee of the Murray Darling Basin Ministerial Council,' http://www2.mdbc.gov.au/about/the_mdbc_agreement.html, Undated
- ⁵⁶⁹ Wentworth Group of Concerned Scientists, Participatory Governance: Intra and Inter Governmental Consultation and Community Engagement in the Murray- Darling Basin Initiative 7th Annual Corporate Governance in the public sector Conference, Canberra 20-22 April 2004 Leith Bouilly Chairman, Community Advisory Committee of the Murray-Darling Basin Ministerial Council (http://www.wentworthgroup.org/docs/participatory_governance.pdf)
- ⁵⁷⁰ Murray Darling Basin Commission, 'Community Advisory Committee of the Murray Darling Basin Ministerial Council,' http://www2.mdbc.gov.au/about/the_mdbc_agreement.html, Undated
- ⁵⁷¹ K. Wellman, 'Participatory Governance: the relationship between the community and the government in the Murray-Darling Basin Initiative', report prepared for the Murray-Darling Basin Commission, (2002) National Institute of Governance, Canberra
- ⁵⁷² K. Wellman, 'Participatory Governance: the relationship between the community and the government in the Murray-Darling Basin Initiative', report prepared for the Murray-Darling Basin Commission, (2002) National Institute of Governance, Canberra
- ⁵⁷³ Sara Pirk, 'Expanding Public Participation in Environmental Justice: Methods, Legislation, Litigation and Beyond' (2002) 17 *Journal of Environmental Law and Litigation* 207
- ⁵⁷⁴ Sara Pirk, 'Expanding Public Participation in Environmental Justice: Methods, Legislation, Litigation and Beyond' (2002) 17 *Journal of Environmental Law and Litigation* 207
- ⁵⁷⁵ Sara Pirk, 'Expanding Public Participation in Environmental Justice: Methods, Legislation, Litigation and Beyond' (2002) 17 *Journal of Environmental Law and Litigation* 207
- ⁵⁷⁶ Sara Pirk, 'Expanding Public Participation in Environmental Justice: Methods, Legislation, Litigation and Beyond' (2002) 17 *Journal of Environmental Law and Litigation* 207
- ⁵⁷⁷ Sara Pirk, 'Expanding Public Participation in Environmental Justice: Methods, Legislation, Litigation and Beyond' (2002) 17 *Journal of Environmental Law and Litigation* 207
- ⁵⁷⁸ Sara Pirk, 'Expanding Public Participation in Environmental Justice: Methods, Legislation, Litigation and Beyond' (2002) 17 *Journal of Environmental Law and Litigation* 207
- ⁵⁷⁹ *Local Government Act 1989* (Vic)
- ⁵⁸⁰ Bolitho, A., Hendriks, C., and Foulkes, C., Citizens' committees in local Government: The role of committees of management in Victoria Pilot Study Report, May 2012, p. 7
- ⁵⁸¹ Bolitho, A., Hendriks, C., and Foulkes, C., Citizens' committees in local Government: The role of committees of management in Victoria Pilot Study Report, May 2012, p. 11
- ⁵⁸² http://www.dnrm.qld.gov.au/_data/assets/pdf_file/0015/82500/wrap-report.pdf

-
- ⁵⁸³ Department of State Development, Infrastructure and Planning, 'Regional Planning Committees' <http://www.dsdp.qld.gov.au/regional-planning/be-part-of-the-regional-planning-committees.html> accessed 29 November 2012.
- ⁵⁸⁴ Agriculture, Resources and Environment Committee, Mines Legislation (Streamlining) Amendment Bill 2012 (Qld), Report No. 7, August 2012
- ⁵⁸⁵ *Sustainable Planning Act 2009* (Qld), s 31(1).
- ⁵⁸⁶ *Sustainable Planning Act 2009* (Qld), s 33(1).
- ⁵⁸⁷ *Sustainable Planning Act 2009* (Qld), s 22(1).
- ⁵⁸⁸ *Sustainable Planning Act 2009* (Qld), s 33(2).
- ⁵⁸⁹ *Sustainable Planning Act 2009* (Qld), s 33(3).
- ⁵⁹⁰ *Sustainable Planning Act 2009* (Qld), s 33(5).
- ⁵⁹¹ *Sustainable Planning Act 2009* (Qld), s 32(1).
- ⁵⁹² *Sustainable Planning Act 2009* (Qld), s 32(2).
- ⁵⁹³ Goals adapted from Thomas C. Beierle, 'Public Participation in Environmental Decisions: An Evaluation Framework Using Social Goals' (1998) Evaluation Discussion Paper Vol.18, Issue 1,
- ⁵⁹⁴ Gail Bingham, Pamela Esterman, Christopher Riti, 'Effective Representation of Clients in Environmental Dispute Resolution', *Pace Environmental Law Review*, 2009
- ⁵⁹⁵ Gaventa, J, 'Representation, Community Leadership and Participation: Citizen Involvement' in Neighbourhood Renewal and Local Governance, 2004.
- ⁵⁹⁶ Scott London, *Collaboration in Action: A Survey of Community Collaboratives* (1996), <http://www.scottlondon.com/reports/ppcc.html>
- ⁵⁹⁷ Florida Legislature House of Representatives Speaker's Advisory Committee on the Future, 'Final report of the Speaker's Advisory Committee on the Future', The Committee, 1988.
- ⁵⁹⁸ 'Analysis of S.1470', Report, Last Best Place Wildlands Campaign, 2009.
- ⁵⁹⁹ Letter from U.S. Senator Jon Tester to Paul Babb, 2 May 2007.
- ⁶⁰⁰ *Forest Jobs and Recreation Act 2009*.
- ⁶⁰¹ Crystine Miller, 'A New Day for Montana's Public Lands', *Wild Montana* (Montana), August 2009.
- ⁶⁰² Greater Yellowstone Coalition, 'Southwest Montana and the High Divide: Keeping Greater Yellowstone Connected,' <http://www.greateryellowstone.org/issues/lands/Feature.php?id=273>, 2012
- ⁶⁰³ Owyhee Initiative, *Implementing the Owyhee Public Lands Management Act Legislation, and the Owyhee Initiative Agreement* (12 March 2011) Owyhee Initiative, Inc. <http://www.owyheeinitiative.org/resources.htm>
- ⁶⁰⁴ Mike Crapo, 'Crapo Introduces Owyhee Initiative' (News Release, August 3 2006) http://www.crapo.senate.gov/media/newsreleases/release_full.cfm?id=261185.
- ⁶⁰⁵ Mike Crapo, 'Crapo Introduces Owyhee Initiative' (News Release, August 3 2006) http://www.crapo.senate.gov/media/newsreleases/release_full.cfm?id=261185.
- ⁶⁰⁶ Owyhee Initiative, *Implementing the Owyhee Public Lands Management Act Legislation, and the Owyhee Initiative Agreement* (12 March 2011) Owyhee Initiative, Inc. <http://www.owyheeinitiative.org/resources.htm> and Mike Crapo, 'Crapo Introduces Owyhee Initiative' (News Release, August 3 2006) http://www.crapo.senate.gov/media/newsreleases/release_full.cfm?id=261185.

-
- ⁶⁰⁷ Department for Communities and Local Government “Sustainable Communities Act 2007: A Guide” (2008), <http://www.communities.gov.uk/publications/localgovernment/sustainablecommunitiesact>, accessed 29 August 2012
- ⁶⁰⁸ Department for Communities and Local Government “Sustainable Communities Act 2007: A Guide” (2008), <http://www.communities.gov.uk/publications/localgovernment/sustainablecommunitiesact>, accessed 29 August 2012, p3.
- ⁶⁰⁹ Department for Communities and Local Government “Sustainable Communities Act 2007: A Guide” (2008), <http://www.communities.gov.uk/publications/localgovernment/sustainablecommunitiesact>, accessed 29 August 2012, p6.
- ⁶¹⁰ Section 5(4) of the *Sustainable Communities Act 2007*.
- ⁶¹¹ The Sustainable Communities Bill Committee Stage Report, Research Paper 07/54, 12 June 2007, p.7
- ⁶¹² The Sustainable Communities Bill Committee Stage Report, Research Paper 07/54, 12 June 2007, p.7
- ⁶¹³ Questions and Answers about the Sustainable Communities Act”, <http://www.tewkesburybc.gov.uk/index.cfm?articleid=3731> accessed 12 September 2012.
- ⁶¹⁴ Department for Communities and Local Government “Sustainable Communities Act 2007: A Guide” (2008), <http://www.communities.gov.uk/publications/localgovernment/sustainablecommunitiesact>, accessed 29 August 2012, p 3.
- ⁶¹⁵ Local Works <<http://www.localworks.org/pages/about-us>> accessed 29 August 2012.
- ⁶¹⁶ Department for Communities and Local Government “Sustainable Communities Act 2007: A Guide” (2008), <http://www.communities.gov.uk/publications/localgovernment/sustainablecommunitiesact>, accessed 29 August 2012, p 3.
- ⁶¹⁷ Local Works <<http://www.localworks.org/pages/about-us>> accessed 29 August 2012.
- ⁶¹⁸ Brunner, R and Lynch, A. (2010) *Adaptive governance and climate change*, Boston: American Meteorological Society.
- ⁶¹⁹ Kenneth R. Foster et al, ‘Science and the Precautionary Principle’, 2000, *Science*, 979 – 81, 979
- ⁶²⁰ Paul Burton, ‘Power to the People? How to Judge Public Participation,’ Vol. 19, No. 3 193-198, August 2004, *Local Economy*
- ⁶²¹ ‘Mine closure panics Dysart’ *Daily Mercury* 14 April 2012 <http://dailymercury.com.au/story/2012/04/14/mine-closure-panics-dysart/>
- ⁶²² Paul Burton, ‘Power to the People? How to Judge Public Participation,’ Vol. 19, No. 3 193-198, August 2004, *Local Economy*, p. 197
- ⁶²³ Department for Communities and Local Government “Sustainable Communities Act 2007: A Guide” (2008) <http://www.communities.gov.uk/publications/localgovernment/sustainablecommunitiesact> accessed 29 August 2012.
- ⁶²⁴ Questions and Answers about the Sustainable Communities Act”, <http://www.tewkesburybc.gov.uk/index.cfm?articleid=3731> accessed 12 September 2012.
- ⁶²⁵ Esbjorn-Hargens, Sean., *An Overview of Integral Theory: An All- Inclusive Framework for the 21st Century*, Integral Institute, *Resource Paper No. 1*, March 2009, pp. 1 – 24, http://dialogue4health.com/pdfs/3_18_09/E_H_Overview-IT.pdf
- ⁶²⁶ Esbjorn-Hargens, Sean., *An Overview of Integral Theory: An All- Inclusive Framework for the 21st Century*, Integral Institute, *Resource Paper No. 1*, March 2009, pp. 1 – 24, http://dialogue4health.com/pdfs/3_18_09/E_H_Overview-IT.pdf
- ⁶²⁷ Esbjorn-Hargens, Sean., *An Overview of Integral Theory: An All- Inclusive Framework for the 21st Century*, Integral Institute, *Resource Paper No. 1*, March 2009, pp. 1 – 24, http://dialogue4health.com/pdfs/3_18_09/E_H_Overview-IT.pdf

⁶²⁸ Esbjorn-Hargens, Sean., *An Overview of Integral Theory: An All- Inclusive Framework for the 21st Century*, Integral Institute, *Resource Paper No. 1*, March 2009, pp. 1 – 24,
http://dialogue4health.com/pdfs/3_18_09/E_H_Overview-IT.pdf

⁶²⁹ Esbjorn-Hargens, Sean., *An Overview of Integral Theory: An All- Inclusive Framework for the 21st Century*, Integral Institute, *Resource Paper No. 1*, March 2009, pp. 1 – 24,
http://dialogue4health.com/pdfs/3_18_09/E_H_Overview-IT.pdf

⁶³⁰ The Sustainable Communities Bill Committee Stage Report, Research Paper 07/54, 12 June 2007, p.7

⁶³¹ The Sustainable Communities Bill Committee Stage Report, Research Paper 07/54, 12 June 2007, p.11

⁶³² The former Department of Employment, Economic Development and Innovation (DEEDI), 'Coordinator-General's Guideline for Fees,' Part 4 - Environmental Coordination Process, August 2011

⁶³³ The former Department of Employment, Economic Development and Innovation (DEEDI), 'Coordinator-General's Guideline for Fees,' Part 4 - Environmental Coordination Process, August 2011

⁶³⁴ Franks, DM, Brereton, D, Moran CJ, Sarker, T and T Cohen. 2010. CUMULATIVE IMPACTS – A GOOD PRACTICE GUIDE FOR THE AUSTRALIAN COAL MINING INDUSTRY, CSRM, SMI, The University of Queensland, p36.

⁶³⁵ Thomas Beirle, 'Public participation in environmental decisions: An evaluation framework using social goals,' November 1998

⁶³⁶ Thomas Beirle, 'Public participation in environmental decisions: An evaluation framework using social goals,' November 1998

⁶³⁷ Thomas Beirle, 'Public participation in environmental decisions: An evaluation framework using social goals,' November 1998

⁶³⁸ Paul Burton, 'Power to the People? How to Judge Public Participation,' Vol. 19, No. 3 193-198, August 2004, Local Economy, p. 197

