

Interim Independent Expert Scientific Committee on Coal Seam Gas and Coal Mining

Communiqué

Third Meeting – 26 March 2012, Canberra

Attendees: Professor Craig Simmons (Chair), Emeritus Professor Peter G Flood, Ms Jane Coram, Professor Chris Moran, Professor John Langford, and Associate Professor David Laurence.

The Interim Independent Expert Scientific Committee on Coal Seam Gas and Coal Mining (the committee) met in Canberra on 26 March 2012 to discuss the provision of advice on one coal seam gas exploration project and two coal mining projects. The committee also discussed its strategic framework, bioregional assessments and research priorities.

The committee considered the Apex-Illawarra Coal Seam Gas Exploration Drilling and Gas Monitoring Project, Sonoma Mine Management Project and the Codrilla Coal Mine Project. The committee provided advice on the Apex exploration project, with a view that the proposed exploration activities would have minimal impact on water resources. The committee deferred providing advice on the two other projects to allow for further examination of the implications on water resources of these projects.

The committee discussed the development of a strategic framework which will provide greater transparency to government, industry and communities on its decision making processes. It was agreed that the water balance approach and risk assessment methodology were a central part of this framework.

The strategic framework provides the justification for the projects that the committee recommends, and therefore the accountability, to the public. The framework will also provide one mechanism to evaluate the committee's performance. The strategic framework will clearly explain to stakeholders why particular themes have been identified, how the proposed research will fill critical gaps in scientific understanding, as well as to help meet the information requirements of decision makers.

The water balance approach is a key component of the strategic framework as it underpins the committee's decision making. It was agreed the water balance model should include:

- Usages of the identified aquifer
- An assessment of regional water assets

- Critical dependencies of the identified aquifer
- An understanding of structural and dynamic groundwater systems; and
- Assessment of the quality of information and data for the identified aquifer.

The committee determined that knowledge projects would be recommended where gaps exist in developing a water balance for an identified basin. The outcomes of the knowledge projects would feed into the development of a more sophisticated water balance and therefore, a more sophisticated risk assessment for better decision making processes.

The committee discussed bioregional assessments and agreed that the vulnerability of assets was a critical first step for any bioregional assessment. Sensitive assets in each region should be documented and the project proponent will be required to provide evidence to justify why the asset will not be impacted, or if it is, the level of impact on the asset. The water balance will be critical to the risk framework against which the proponent's development activities will be assessed.

The committee is fully aware that these bioregional assessments must be based on robust science, but cannot be constrained to a purely technical exercise. The committee has been clear to ensure that consultation is a critical part of the development process. To that end, the committee held a very successful 2 day workshop in Sydney on March 19-20 to discuss bioregional assessments on all levels – from strategic development and what a bioregional assessment would involve, through to their appropriate implementation. The meeting was attended by stakeholders from states, regional natural resource management bodies, industry and other research providers. The committee will continue to ensure strong consultation and collaboration are a hallmark feature of the committee's work.

The committee noted the five initial areas for bioregional assessment which were announced on 22 March by the Australian Government Minister for Sustainability, Environment, Water, Population and Communities, the Hon Tony Burke MP.

The five initial bioregional assessments will undertake a scientific analysis of the ecology, hydrology and geology of an area for assessing potential direct and indirect impacts of coal seam gas or large coal mining developments on water resources. In line with the *National Partnership Agreement on Coal Seam Gas and Large Coal Mining Development*, these assessments will be conducted in conjunction with scientific agencies, relevant state and territory government agencies and natural resource management bodies. Up to \$7 million is required over the next two financial years. To ensure comparability of results across all the bioregional assessment areas, a consistent methodology will be developed that will be used to provide an underpinning scientific platform for this work. In parallel to the development of the methodology, five additional projects, as outlined below, will be rolled out across the five priority areas.

The Rapid Regional Prioritisation Project, undertaken by Geoscience Australia, CSIRO, ABARES and the Department of Agriculture, Fisheries and Forestry is almost complete, and will allow the committee to prioritise future bioregional assessments in a transparent and consistent manner, underpinned by clear ranking criteria.

To progress the bioregional assessments, the committee identified six projects which would be undertaken in parallel.

The six projects are:

- Develop a full methodology for bioregional assessments
- Investment in conceptualisation of water balance models and supporting data
- Undertake a gap analysis in each region of the water data, based on the conceptual model and tested
- Development of a 'hazard register' for each region
- Development of an 'assets list' for each region; and
- Representation of vulnerabilities.

Each project would utilise a phased approach, with the first phase expected to be completed by 30 June 2012. This approach allows the committee to ascertain the need for future work and also provides a review point for the new committee.

The committee discussed the current research agenda and noted that the literature review required the identification of suitable research providers before it could commence. It was considered that the literature review would be progressed by multiple providers based on issues; with a coordination role provided by the committee to ensure consistency across issues, and mitigation against duplication. The literature review is seen by the committee as an essential tool to establish baseline information and data for the bioregional assessments.

The commissioning of research projects has been a major area where the committee has focussed its efforts. To that end, the committee has now provided the Australian Government environment minister with specific proposals for timely investment. This will ensure that the funds available for the 2011-12 period can be committed and expensed in time. The committee identified ten major strategic research projects with a total budget of up to \$13.18 million GST exclusive for the current and subsequent financial year.

These projects are informed by a clear understanding of key knowledge gaps which transcend the coal seam gas and coal mining industries as well as a two day consultation workshop held by the committee on February 6-7 in Brisbane, where the committee worked closely with representatives from industry, natural resource management groups, state agencies and research providers to identify key knowledge gaps which require further investigation.

The strategic knowledge projects are:

- Comparison of groundwater modelling approaches
- Information platform to support bioregional assessment of Australia's major coal basins
- Strategic acquisition of remotely sensed optical, radar and geophysical data
- Monitoring and managing bore integrity
- Hydraulic properties of aquifer geology

- The geochemical, organic, and isotopic composition of coal seam gas co-produced waters
- Subsidence impacts due to coal seam gas extraction and underground longwall mining of coal
- Field Survey of EPBC listed Great Artesian Basin-fed springs; and
- Basin-scale aquatic ecosystem monitoring; and
- Managing coal seam gas co-produced water.

The committee has the proposed projects against a 'knowledge needs' criteria. The criterion are:

- The need to improve the science base and fill the knowledge gaps to the extent needed to give greater confidence to regulators and to the community
- The need to improve the robustness of impact prediction, including numerical modelling of impacts on water resources at a regional scale
- The need to gain a better understanding of the potential for connectivity between aquifer systems; and
- The need to establish tolerance to changes in water quality and quantity of key receptor species and ecosystems.

To ensure confidence in the integrity of the committee's work, there is need for clear communication of the findings of the research to the community. This includes the requirement to develop knowledge storage and visual display systems that will facilitate transparent access to the research material for the community, industry, and state and commonwealth regulators.

Knowledge adoption and communication tools are considered an essential component of the overall package of commissioned research work. One method could be the use of information systems which allow users to input 'what if' scenarios and see the changes created by various inputs.

Committee Support

The committee is supported by the Office of Water Science, a dedicated unit established in the Department of Sustainability, Environment, Water, Population and Communities. The committee will continue to work closely with the Office of Water Science to progress its work.