Chapter 2

Water supply and quality

2.1 The committee received extensive evidence concerning the potential impacts of mining in the Namoi River Valley and the Darling Downs catchments. Generally, submitters and witnesses who opposed mining argued that it would damage water flow and quality, thus irreversibly damaging the livelihoods of farmers and associated rural industries and communities. Mining industry representatives insisted that much of the community concern was misplaced as the industry was heavily regulated to ensure maximum environmental protection.

2.2 While the potential impact of mining on water resources was contested by submitters and witnesses there was general consensus that the water resources available in the Liverpool Plains and the Darling Downs create uniquely productive agricultural land. The Australian Society of Soil Science Incorporated (ASSSI), the peak body for soil scientists in Australia, submission stated that the Vertosols[1] of the Darling Downs and Liverpool Plains are amongst the most productive cropping soils in Australia.[2] The ASSSI's submission further stated that:

> The reasons for the outstanding productivity of the clay soils in these two areas are their (1) inherent chemical fertility, (2) high capacity to hold water after rain or irrigation (high plant available water capacity), (3) location in a zone providing good natural rainfall (600-800 mm/a) and (4) access to good quality groundwater for irrigation. There are few other areas in Queensland and NSW which have this combination of resource.[3]

2.3 The ASSSI position was echoed in a range of other evidence presented to the committee including Agforce, the peak body representing Queensland's beef, sheep and wool, and grains producers, who stated that:

> Our prime agricultural lands cover a very large area of very deep alluvial soils. They are highly productive, they have an extremely high water-holding capacity and they make farming in this part of the world, where we have always had a very unreliable climate, reliable. Without these soils, we would not be in business.[4]

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1 Vertosols are also often called cracking clay soils. They have a clay texture throughout the profile; display strong cracking when dry, and shrink and swell considerably during wetting and drying phases.

2 Australian Society of Soil Scientists Incorporated, *Submission 24*, p. 2.

3 Australian Society of Soil Scientists Incorporated, *Submission 24*, p. 3.

4 Cr Wayne Newton, Agforce, *Proof Committee Hansard*, 29 September 2009, p. 14.

2.4 The majority of submitters and witnesses opposed to mining in the Liverpool Plains and the Darling Downs stated that they were not anti-development or anti-mining. The National Farmers' Federation (NFF) submission argued that:

> The agricultural and mining industries have co-existed in regional Australia, and both the agricultural and mining industries have continued to experience growth over recent years.[5]

2.5 This was echoed in evidence to the committee by the Friends of Felton Incorporated who stated:

> We are at pains to say that we are not antidevelopment… but it really is the scale of this mine that scares us most.[6]

2.6 The Haystack Road Coal Committee acknowledged that mining was producing some benefits for the community and that many of the downsides were accepted with a degree of community goodwill, as people recognised that economic activity produced benefits.[7] Their position, which reflected the views of many submitters and witnesses, is summarised by the following statement:

> We understand the massive economic potential that is there that cannot be left untapped, but we do not believe it should be tapped at any cost.[8]

2.7 Community representatives were specifically concerned that there is lack of understanding about the fragility and interconnectivity of their water resources. Namoi Water, a peak water users group in the Namoi catchment area, stated:

> The great concern in this community over the last three years is that the state government and the miners have walked up to this new development as if it is something that they have encountered before and something that they understand. They do not understand it. Answers to your questions here today again show those of us who work with this resource that these people do not understand what they are dealing with.[9]

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5 National Farmers' Federation, *Submission 55*, p. 1.

6 Mr Ian Whan, Committee Member, Friends of Felton Inc, *Proof Committee Hansard*, 29 September 2009, p. 29.

7 Mr Jeffrey Bidstrup, Chair, Haystack Road Coal Committee, *Proof Committee Hansard*, 29 September 2009, p. 9.

8 Mr Jeffrey Bidstrup, Chair, Haystack Road Coal Committee, *Proof Committee Hansard*, 29 September 2009, p. 7.

9 Mr John Clements, Executive Officer, Namoi Water, *Proof Committee Hansard*, 28 September 2009, p. 16.

Water Flow

2.8 The key concern of many submitters and witnesses was the potential for mining to disrupt the complex connectivity and interdependence between surficial and groundwater resources.

2.9 The committee heard substantial evidence concerning the importance of underground aquifers to the regions' agricultural productivity. This evidence concluded that the ridges along the floodplain were important recharge areas for the aquifers. A farmer from the Liverpool Plains, Mrs Kirrily Blomfield, argued that:

> …we must protect the ridges of the Liverpool Plains from mining as they are recharge areas for the aquifers which feed the Murray-Darling Basin; secondly, we must protect the ridges as they contain shallow aquifers which are critical for ridge country management and, in turn, the river system inflows.[10]

2.10 Mrs Blomfield cited a proposal to clear trees from her farm that was refused by the NSW Department of Land and Water Conservation on the grounds that the ridge areas were important recharge areas for underground aquifers.[11] Mrs Blomfield claimed that these same areas, whose aquifers are critical for grazing management, are being explored as potential mining sites.[12] This was supported by Namoi Water who stated:

> …you cannot expect significant recharge areas to continue to be that when open-cut practices or longwall mining practices, which alter the landscape, go into these areas. An aquifer, an underground basin of water, is nothing if you cut off the recharge.[13]

2.11 A number of submitters expressed concern about the potential for mining to damage underground aquifers. The Australian Institute of Agricultural Science and Technology's submission argued that:

> Open-cut coal mining of the cropped area is likely to destroy underlying shallow aquifers. Mining of surrounding intake areas could also reduce available water supplies. As indicated previously, the uniqueness of the Darling Downs and Liverpool Plains areas is the quality of the soils and the location with good natural rainfall for grain crops.[14]

2.12 Namoi Water supported this assessment:

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10 Mrs Kirrily Blomfield, *Proof Committee Hansard*, 28 September 2009, p. 24.

11 Mrs Kirrily Blomfield, *Proof Committee Hansard*, 28 September 2009, p. 24.

12 Mrs Kirrily Blomfield, *Proof Committee Hansard*, 28 September 2009, p. 26.

13 Mr John Clements, Executive Officer, Namoi Water, *Proof Committee Hansard*, 28 September 2009, p. 21.

14 Australian Institute of Agricultural Science and Technology, *Submission 40*, p. 2.

> You are talking about three-dimensional alteration of landscape. Miners actually drop the landscape by a metre to two metres, depending on the development. You may fracture; you may discompact. These are flowing streams underground. They are pools of water that aggregate and flow, sometimes through constrictions and sometimes quite broadly. You cannot alter the entire landscape and expect those flows to continue.[15]

2.13 The Friends of Felton further asserted that:

> …it is well known and well documented that those basaltic hilltops are the recharge areas for the aquifers in the bottom of the valley. If you remove those hills where the coal is then suddenly you have part of the system that does not work anymore. You do not have anywhere where the water will infiltrate and underpin the productivity of the flats. There is a grave concern about the cycling of water in that system when it is so severely altered.[16]

2.14 Submitters and witnesses were understandably anxious about the impact that possible aquifer destruction would have on their livelihoods. However, they also stressed that the aquifers were part of the greater Murray-Darling system and that disruption at the water source, in the ridge country of the Liverpool Plains and the Darling Downs, would have potentially adverse affects downstream.[17]

2.15 While submitters and witnesses were concerned about the impact of mining on underground aquifers there was also broad concern that mining activity would disrupt the contours of the land, consequently rerouting the flow of flood water and causing widespread erosion. The Jimbour Action Group outlined the impact that a disruption to the landscape by mining could cause:

> …any change, even a very subtle change, such as a set of wheel tracks running down the hill at an angle or… fence lines and things like that, can change the direction of the flow of the water. When the direction is changed, it usually ends up being concentrated. When it gets concentrated, it flows quickly and that is when the damage happens. If you put a strip mine across this flood plain, you have to build a bank to dig a hole. I do not know how you get around that one. You would be diverting water on a huge scale compared to what is happening now.[18]

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15 Mr John Clements, Executive Officer, Namoi Water, *Proof Committee Hansard*, 28 September 2009, p. 19.

16 Mrs Vicki Green, Member, Friends of Felton Inc, *Proof Committee Hansard*, 29 September 2009, p. 27.

17 Mr Jeffrey Bidstrup, Chair, Haystack Road Coal Committee, *Proof Committee Hansard*, 29 September 2009, p. 12.

18 Mr St John Kent, Member, Jimbour Action Group, *Proof Committee Hansard*, 29 September 2009, p. 35.

2.16 This evidence was supported by the Queensland Murray-Darling Committee Incorporated who argued that in the case of the Fitzroy River, levy banks erected to protect mine sites altered the flow of the floodplains. The Queensland Murray-Darling Committee Incorporated stated:

> As the floods came down, that [levy banks] reduced the width of the floodplain. So, instead of the flood breaking out of a river and spreading out over two, three, four or up to seven kilometres in some places, it is then restricted down to two or three kilometres wide. So that volume of water now does not have a floodplain to flood across; it is restricted. In a number of cases those levy banks did not hold in the Fitzroy and those mines were flooded. There are some fairly spectacular photos of draglines being flooded and so forth. That had a couple of impacts. It was obviously pretty devastating for those mining operations, but it also meant that several of those mining operations were given approval by the state government to pump their mines back to being dry again. That has created a range of issues in terms of water quality in the Fitzroy River.[19]

2.17 The Fitzroy River example was referenced by a number of submitters and witnesses concerned about the potential for similar contamination of riparian systems to occur on the Liverpool Plains or the Darling Downs - with basin-wide impacts. Submitters and witnesses highlighted the damage caused to the Fitzroy River by contaminated water, discharged after mines were subject to extensive flooding, as an illustration of the potential impact that mining could have on the MDB and the lack of regulatory protection against such an incident occurring. The committee viewed the floodplain on its tour of the Caroona coal exploration site and heard anecdotal accounts that highlighted the threat posed to mining activity by the volume of water flowing through the area during a flood period.

2.18 A study commissioned by the Queensland government, in response to the flood incident on the Fitzroy, found that several of the regulatory mechanisms designed to ensure water quality were inconsistent and that there was insufficient data available to quantify the cumulative impacts of mining on water discharges.[20] The report recommended that the Queensland government:

1. Develop appropriate conditions in environmental authorities for mine water discharges;

2. Develop local water quality guidelines; and

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19 Mr Geoff Penton, Chief Executive Officer, Queensland Murray-Darling Committee Inc, *Proof Committee Hansard*, 29 September 2009, p. 41.

20 Queensland government, *A study of the cumulative impacts on water quality of mining activities in the Fitzroy River Basin*, April 2009. http://www.fitzroyriver.qld.gov.au/cumulativeimpacts.html (accessed 21 October 2009).

3. Develop a model for assessing cumulative impacts across the region.[21]

2.19 The Queensland government has also set up a Fitzroy River Water Quality Advisory Group to provide advice on the implementation of these recommendations.

2.20 The Queensland Resources Council, a member of the Fitzroy River Water Quality Advisory Group, provided evidence that the mining industry had been an active and responsible participant in the Queensland Government's response to the flood event on the Fitzroy River.[22] This included contributing, through the Fitzroy Water Quality Advisory Group, to the development of new water discharge conditions.[23]

Water Quality

2.21 The potential for coal mining and coal seam methane extraction to contaminate water resources was a major concern for many submitters and witnesses. The CCAG argued that its greatest concern was not a reduction in water quantity in underground aquifers but a reduction in quality.[24] Some submitters and witnesses also argued that drilling through shallow aquifers could result in contamination of water by drilling fluids and toxic water drawn from the coal seam. The Namoi Water Users Association stated that:

> I just want to reinforce that agricultural drilling is to a maximum of 100 metres, and generally far less, and runs through potable water. Some of the very shallow water is saline and that is routinely cased off. The activities of miners and the gas exploration companies is that they do not run through potable water; they run through potable water and water that is not potable—water that is heavily contaminated and that, in some cases, has naturally occurring elements such as arsenic and other things that are quite noxious. So it is a very different activity.[25]

2.22 Mrs Bridget Gallagher, a local farmer, expressed concern that oil and gas contaminants can include arsenic, lead, mercury and selenium and zinc.[26] Mrs

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21 Queensland government, *A study of the cumulative impacts on water quality of mining activities in the Fitzroy River Basin*, April 2009. http://www.fitzroyriver.qld.gov.au/cumulativeimpacts.html (accessed 21 October 2009).

22 Queensland Resource Council, *additional information*, 20 October 2009.

23 Queensland Resource Council, *additional information*, 20 October 2009.

24 Mr Timothy Duddy, Spokesperson, Caroona Coal Action Group, *Proof Committee Hansard*, 28 September 2009, p. 22.

25 Mr John Clements, Executive Officer, Namoi Water, *Proof Committee Hansard*, 28 September 2009, p. 20.

26 Mrs Bridget Gallagher, *Proof Committee Hansard*, 28 September 2009, p. 28.

Gallagher's concerns were raised by several other submitters and witnesses including the CCAG's Coal Seam Gas Subcommittee.[27]

> The committee also heard from witnesses concerned about the process of fraccing - a method used to increase the flow of gas from the coal seam – and its potential impact on the water resource.[28]

2.23 These claims were strongly refuted by Santos, a company with extensive experience extracting coal seam methane in Queensland and currently involved in exploration in NSW. Santos stated:

> In the drilling of wells we use a water based fluid. We do not use any toxic chemicals—in fact they are certified as non toxic. So everything we use is benign to the environment. We ensure that all wells are case cemented and isolated through the various strata that we drill for the coal seams. In terms of fraccing, the process of fraccing or fracture stimulation is a method by which you propagate open the coal seam to enhance its ability to flow. You restrict that fracture to the coal seam itself, and in doing so you typically use a water based fluid with some polymers which are biodegradable and which put a prop head in the ground. A prop head can be some sort of sand prop head just to keep the fractures open as you propagate the coal open with the pressure. So there are no toxic chemicals used in terms of the subsurface.[29]

2.24 A 2008 review found no published research on the health effects of fraccing or the fluids used in the process.[30] Santos also indicated:

> Claims that Santos intends to use an explosive fraccing process, and that there is "…no control over the extent of the fracture…" are incorrect. In the event that fraccing is absolutely necessary, the intention is to fracture the coal seam only, allowing gas to travel to the well and the surface. The fracture stimulation is designed to ensure that neighbouring rock is left intact.[31]

2.25 The CSIRO's submission contended that their research indicated that the effects of mining on groundwater are mine-site specific and depend on variables such as overburden geological, geotechnical and hydrogeological conditions, characteristics of aquifers and aquitards involved, and mining depth.[32] The CSIRO stated:

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27 Caroona Coal Action Group - Coal Seam Methane Subcommittee, *Submission 29*, p. 3.

28 Caroona Coal Action Group – Coal Seam Methane Subcommittee, *Submission 29*.

29 Mr Stephen Kelemen, Manager, Coal Seam Gas, Santos, *Proof Committee Hansard*, 29 September 2009, p. 53.

30 Roxana Witter *et* al., 2008, Potential Exposure-Related Human Health Effects of Oil and Gas Development: A Literature Review (2003-2008), University of Colorado Denver School of Public Health.

31 Santos, *Submission 84*, p. 10.

32 CSIRO, *Submission 65*, p .5.

> The environmental impacts of the operation primarily relate to the need for a supply of groundwater during operation and localised affects on the groundwater supply post operation. Modelling suggests that groundwater quality can be maintained within acceptable standards by the use of various operational techniques, such as, maintaining an underpressure in the extraction zone and carefully monitoring water volumes and quality.[33]

2.26 The need to use case by case assessment when examining the environmental impacts of mining activity was a key contention of both the NSW Minerals Council and the Queensland Resources Council.[34]

2.27 The committee also heard evidence concerning the disposal of the large quantities of salt accumulated during the coal seam methane extraction process. Water used in this process is often quite saline with Agforce estimating that, based on the annual water production figures supplied by the Queensland government and the Australian Petroleum Production and Exploration Association (APPEA), coal seam methane developments could yield approximately 50,000,000 tons of salt over 30 years.[35] The potential impact of large quantities of salt was raised by a number of witnesses including the Haystack Road Coal Committee who were specifically concerned about the risk of salt contaminating the MDB, and Agforce who argued that none of the companies involved in coal seam methane extraction appeared to have a plan for the disposal of salt. [36] Agforce stated:

> This product is able to totally poison the agricultural ability of our farmland. It can totally destroy it. One only has to travel to parts of southern Australia to see the damage that salt can do… The immense size of this problem cannot be overstated. This whole industry should be renamed the 'salt mining industry'. We are going to see more salt produced from the Surat Basin in the next 30 years than probably the total amount of grain produced in the next 30 years. We have logistical problems in this state, in this region, moving grain. I do not know how they think they are going to move this anywhere. The industry and the government still have no plans for its disposal.
>
> Salt cannot be burnt. Salt cannot be just flushed into the ocean; it is contaminated with a number of other products. It has to have a commercial use. I suggest that, if you land that much salt on the commercial market, there will not be any value; and the value of freight is going to far exceed

33 CSIRO, *Submission 65*, p. 5.

34 Ms Sue-Ern Tan, General Manager, Policy and Strategy, New South Wales Minerals Council, *Proof Committee Hansard*, 28 September 2009, p. 2; Mr Andrew Barger, Director, Industry Policy, Queensland Resources Council, *Proof Committee Hansard*, 29 September 2009, p. 58.

35 Cr Wayne Newton, Agforce, *additional information*, 29 September 2009.

36 Mr Jeffrey Bidstrup, Chair, Haystack Road Coal Committee, *Proof Committee Hansard*, 29 September 2009, p. 2; Cr Wayne Newton, Agforce, *Proof Committee Hansard*, 29 September 2009, p. 14.

> what the salt is worth, anyway. We just do not see any plans for the salt. It is the biggest problem here.[37]

2.28 The production of coal seam methane involves the extraction and treatment of large quantities of water found in coal seams between 200 and 1000 metres below the surface.[38] This water is typically saline, with water quality varying between regions and even between individual wells in the same region.[39] Water extracted from coal seams can be desalinated and used for agricultural purposes, for example irrigation.[40] The potential utility of this water was recognised by groups such as Agforce.[41]

2.29 The APPEA acknowledged that some regional areas of the MDB may be impacted more than others by water management issues associated with coal seam methane extraction. However, APPEA further stated that while there were unresolved issues concerning the disposal of salt, the water used could be recycled and put to a number of beneficial uses.[42]

2.30 The committee put the question of salt disposal to Santos who stated that:

> …[We have] not reached a final conclusion on that topic. We have made good progress on considering a range of options for salt management. Our immediate plan is to contain it in ponds, which will be of an approved design as passed by the government. We are looking at the reinjection of the salt water back into the coal seams from where it came. We are also looking at extracting commercial value from the salts to minimise their volume and to get a commercial return for the community. Any salt which cannot be disposed of in one of those processes may be contained in a correctly-designed hazardous waste landfill.[43]

2.31 Santos further stated that removing salt from the region via truck or rail was commercially unviable:

> **Senator LUDLAM**—We heard from earlier witnesses that there is not even the trucking and rail capacity to get wheat crops out of this part of the world, let alone very high tonnages of salt. Are you in discussion with some of those other sectors on potential future transport needs for the waste products?
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> **Mr Davidge**—No, we are not. We would not consider transporting salt as a commercially viable opportunity for the management of salt.

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37 Cr Wayne Newton, Agforce, *Proof Committee Hansard*, 29 September 2009, p. 15.

38 Santos Ltd, *Submission 84*, pp 4–8.

39 Santos Ltd, *Submission 84*, p. 8.

40 Santos Ltd, *Submission 84*, p. 5.

41 Cr Wayne Newton, Agforce, *Proof Committee Hansard*, 29 September 2009, p. 15.

42 Australian Petroleum Production and Exploration Association, *Submission 57*, p. 2.

43 Mr Shaun Davidge, Manager, Water Strategies, Santos, *Proof Committee Hansard*, 29 September 2009, p. 52.

> **Senator LUDLAM**—So there is no real prospect of railing or trucking it out?
>
> **Mr Davidge**—No.[44]

2.32 Due to the increasing quantities of coal seam gas water, produced through the coal seam methane extraction process, and concern about the potential for environmental damage, the Queensland government recently released a Coal Seam Gas Water Policy.[45] The policy tightened regulatory requirements around the treatment and disposal of coal seam gas water.[46] The Queensland government also released a related discussion paper in May 2009 for stakeholder consultation and is currently assessing submissions.[47]

Water Usage

2.33 The committee also heard evidence outlining the importance of available water supply to agricultural production in the Liverpool Plains and the Darling Downs.

2.34 The committee acknowledges that on a regional or state-wide scale agriculture consumes a significantly larger proportion of available water resources than mining, as demonstrated by evidence from the NSW Minerals Council that mining operations consume just over one percent of the states water usage relative to the 70 percent used by the agricultural industry.[48] Nevertheless, evidence provided to the committee suggested that mining or associated industries can have a significant impact on local water availability if significant quantities of water are required for their operations.

2.35 The Friends of Felton Incorporated raised specific concerns about the potential for the proposed Ambre Energy mine and adjacent petrochemical plant to consume scarce water resources. The Friends of Felton Incorporated stated:

> The company intends to mine this coal and then put it through a petrochemical plant to produce liquid fuel. That is a process which requires a large amount of water… There are 586 registered water bores within a 10 kilometre radius of the mine site… There is no free water in that area.[49]

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44 Mr Shaun Davidge, Manager, Water Strategies, Santos, Committee Hansard, 29 September 2009, pp 57–58.

45 Queensland government, http://www.dip.qld.gov.au/growth-strategies/queensland-coal-seam-gas-water-management-policy.html (accessed 21 October 2009).

46 Queensland government, http://www.dip.qld.gov.au/growth-strategies/queensland-coal-seam-gas-water-management-policy.html (accessed 21 October 2009).

47 Queensland government, http://www.dip.qld.gov.au/growth-strategies/management-of-coal-seam-gas-water.html (accessed 21 October 2009).

48 Ms Sue-Ern Tan, General Manager, Policy and Strategy, New South Wales Minerals Council, *Proof Committee Hansard*, 28 September 2009, p. 2.

49 Mrs Vicki Green, Member, Friends of Felton Inc, *Proof Committee Hansard*, 29 September 2009, p. 26.

> One aspect is the threat to underground water from the mining pits. We are very concerned…that digging a mining pit in this area will lead to potential drainage of our local bores and contamination. The other aspect is the water demand for the company's petrochemical plant.[50]

Cumulative impacts

2.36 As outlined above, the committee heard evidence about the potential impacts of mining on specific areas of the Liverpool Plains and the Darling Downs. The need to regulate mining activity on a location-specific basis was reinforced by evidence from the NSW Minerals Council and the Queensland Resources Council. However, the committee also heard substantive evidence concerning the need to investigate the cumulative impact of mining across the region and the MDB.

2.37 The CSIRO submission argued that there has been relatively little assessment of the cumulative impacts of mining on the MDB:

> The impacts of mining tend to be studied on a case by case, region by region or operation by operation basis. The results are initially encapsulated in Environmental Impact Assessments which are available at initiation for both existing and known projected mining operations. Additionally, many of the mine operators in the Murray Darling Basin will be producing annual sustainability reports utilising the Global Reporting Initiative reporting framework which will provide minesite data on environmental values… These sustainability reports represent a valuable source of information on the potential and actual impacts of individual mining operations. However, there has been relatively little quantitative assessment of the cumulative impacts represented by these data.[51]

2.38 Further, the CSIRO stated:

> The key issues in terms of cumulative impact will centre around how individual operations combine over time and over a large region to affect: water availability and variability; impacts on biodiversity; land and groundwater contamination; local and regional dewatering.[52]

2.39 The Queensland Murray Darling Committee Incorporated, whose work primarily looks broadly at water usage across the region, argued that the Fitzroy River disaster provides an example of the need to assess the cumulative impacts of mining on water resources,[53] while Agforce asserted that the cumulative impacts of mining activity in the Surat Basin was unappreciated and a presented a major policy problem:

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50 Mr Robert McCreath, President, Friends of Felton Inc, *Proof Committee Hansard*, 29 September 2009, p. 26.

51 CSIRO, *Submission 65*, pp 5–6.

52 CSIRO, *Submission 65*, p. 6.

53 Mr Geoff Penton, Chief Executive Officer, Queensland Murray-Darling Committee Inc, *Proof Committee Hansard*, 29 September 2009, p. 41.

> In the next three to five years we are going to see 36,000 wells drilled. That is just in the next three to five years. This development will keep occurring for probably the next 30 years.[54]

2.40 When questioned about potential cumulative impacts, the NSW Minerals Council responded that:

> Ultimately, the government does [look at the cumulative impact], but the way that the operations assess those cumulative impacts—I will use noise and dust as an example—the background levels that they need to use in their environmental assessments take into account the existing surrounding noise levels or dust levels. So in that way the levels that exist from other operations are taken into account. That is the way the cumulative impacts get taken into account.[55]

2.41 Namoi Water argued that the cumulative impact was the key feature of this debate. They asserted that answers to the committee's questions by mining industry representatives - regarding cumulative impacts - had focused on dust and noise, things they have 'dealt with before'.[56] However, Namoi Water reinforced their position that this was a three dimensional landscape and that there was no understanding of the cumulative impact on this type of landscape. In Namoi Water's view, the main problem was not polluted discharge from a discrete mine site but the alteration of the entire landscape with associated cumulative impacts that have the potential to flow thousands of kilometres through the Murray-Darling system.[57] Namoi Water concluded that:

> … [this] is why we are here today. There is no other reason. The Water Management Act 2000, the Commonwealth Water Act 2007 and the National Water Initiative are all entirely deficient in terms of recognising and picking up the issue of mining and its impacts on water…It is something new; it has not been contemplated by the legislation. Effectively, the breakdown point is right there. There is no cross-referral. The water management acts and processes of which I have outlined a few are skilful in terms of water management acts but are not able to be linked through any legislative process to the mining act.[58]

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54 Cr Wayne Newton, Agforce, *Proof Committee Hansard*, 29 September 2009, p. 13.

55 Ms Rachelle McDonald, Director, Environment and Community, New South Wales Minerals Council, *Proof Committee Hansard*, 28 September 2009, p. 8.

56 Mr John Clements, Executive Officer, Namoi Water, *Proof Committee Hansard*, 28 September 2009, p. 19.

57 Mr John Clements, Executive Officer, Namoi Water, *Proof Committee Hansard*, 28 September 2009, p. 21.

58 Mr John Clements, Executive Officer, Namoi Water, *Proof Committee Hansard*, 28 September 2009, pp 19–21.