

CAN RURAL VET PRACTICE SURVIVE MINING?



Dairy cattle beside Bengalla open cut coal mine at Muswelbrook, upper Hunter Valley NSW

The reality of Australia's resources boom.

Coal and coal seam gas mining (CSG) are rapidly spreading across Australia's best farmlands whilst the world's agricultural scientists are worried about the planet's ability to feed its future population. Mining threatens the economic and ecological viability of Australian farming, rural communities and businesses including veterinary practices.

Australian Farming in Brief (Australian Bureau of Statistics, September 2012), shows a 10% decrease in total agricultural land area between 2001 and 2011 (1).

Communities across Queensland's Darling Downs, the Liverpool Plains and the Hunter Valley (NSW) are experiencing a dramatic loss of family farms (2). A group of vets are now concerned enough to speak out, joining community action groups working for the survival of environment, agriculture and rural communities in our best farming areas.

Australia's scarce resources: Soil and Water

The statistics surrounding the impact of coal and coal seam gas mining in farmland are frightening. Barely 4% of Australia is high quality arable farmland whose fertile soils have taken thousands of years to form.

Remediation back to high quality cropping activities after open cut mining or widespread salt and chemical contamination cannot occur, irrespective of the false claims from industry.

As the driest continent and after our worst drought, questions need to be asked about the potential for these mining developments to deplete or contaminate aquifers and river catchments across eastern Australia.

CSG extracts huge volumes of water contaminated with heavy metals, trace elements, salts, radioactive nucleotides and volatile hydrocarbon compounds (3). This water is released from deep coal seams and comes to the surface with methane gas. The Federal Government's Water group has produced varying estimates of water extracted from Australia's underground water reserves but figures up to 1500 gigalitres/ year and more have been sited (3). The industry is expanding across farms, floodplains and aquifers without any definite solutions to these water and waste problems. Proposed clean-up of this water with reverse osmosis (RO) requires large retention dams receiving contaminated salt waste.

Industry and governments admit aquifer drawdown will occur, but unknowns include cumulative impacts of tens of thousands of wells piercing these aquifers and a full understanding of aquifer interconnectivity. A federal Senate Inquiry in 2011 recommended a halt to

CSG expansion across the Murray-Darling Basin (MDB) until independent science had answered the numerous questions regarding water resources (4). These recommendations have been ignored.

The National Water Commission estimates 31 million tonnes of salt will be produced by CSG extraction over 30 years, some 700,000 tonnes per year! (3) This amount would fill 15 Melbourne cricket grounds. The quantities are so large that transporting it off the floodplains 'would require 200 tankers operating 24 hours/day travelling 500 kms' (3). No feasible disposal methods has been found however one company already has approval to build a salt pit the size of four Melbourne Cricket Grounds (3) within the Darling River floodplain.

An Industrialised Landscape

Forty thousand gas wells are proposed for the Surat and Bowen Basins in Queensland (3), covering much of the Darling Downs and the Springsure/ Emerald regions; the best farmland in Queensland. Each well has connecting pipelines for gas and water plus access roads; adding over 40,000 kms of connecting pipes and roads to wells, spaced approximately 1km apart. Further pipelines connect this network to collection and compressor stations and then to Gladstone Port. There will be enough CSG pipes in Queensland to cross Australia twelve times from Sydney to Perth!



CSG field south of Chinchilla QLD Surat basin

Many more major gas fields are being proposed or under development in NSW, Victoria and WA. CSG infrastructure criss-crosses arable cropping land with roads, waste water holding dams and compressor stations: all the hallmarks of an industrialised landscape (3). Industrial development on such a scale has never before been seen in Australia.

For anyone who pauses for thought, these are worrying numbers. On conservative estimates 2 to 5% of pipes and well casings will be leaking at any one time. This level is acceptable for industry however what it means for farmers and the MDB is as many as 2000 leaking wells or pipelines, leaking methane, volatile organics and heavy metal contaminated salty water. Leakage in areas of cropping, livestock production and human habitation is unacceptable.

Recently geochemists from Southern Cross University (5, 6, 7) have released the only Australian research on methane concentrations in the Tara gas fields in Queensland. Their findings indicate high levels of methane resulting from fugitive emissions. Independent US studies have also revealed widespread fugitive methane emissions from gas wells (8, 9, 10). If methane is leaking, are the highly dangerous volatile organics leaking too? What of the serious health effects of these leaks on people and livestock?

Mining Impacts on Animal Health and Production

Vets are concerned about health and production threats arising from heavy metal-contaminated landscapes. These accumulate over time with full damage not seen until after mining ends. Questions must be raised about our domestic animals' exposure to a cocktail of chemical pollutants including lead, mercury, antimony, arsenic and cadmium, released from coal mines and CSG wells.

Many major floodplains are now, or will become, dotted with holding dams and waste storage facilities. We know during the 2010/2011 floods a number of dams were breached; however there is no available data on volumes, concentrations, directions of flow or levels of residual contaminants (11). Neither public nor landholders have access to any helpful information because these reports are held as 'commercial in confidence'.

In Australia and USA landholders with CSG activities on their properties are compelled to sign confidentiality agreements which stop them speaking publically of any problems. Bamberger and Oswald (12) have described a number of adverse events from shale gas mining in the USA resulting in significant stock deaths and morbidity. Their paper also highlights the difficulties faced in obtaining information regarding spill events.

Coal related health problems affect both urban and rural Australians due to uncovered trains and coal stockpiles. Doctors for the Environment Australia have become vocal critics of the health effects from coal (13). There is however a shortage of published independent science into health and production impacts of coal dust on grazing animals. Stock adjacent to coal mining have 24 hour/day contact with coal dust in air and on feed. Farmers immediately adjacent to open cut coal mines suggest production and fertility problems and 'black lung' in slaughtered animals. Where else can a neighbouring industry destroy another's production capacity without consequence? When life quality or production becomes difficult many farmers sell to the mines. Farms may become weed infested and lost to production until eventually destroyed by mine expansion.

Community and veterinary losses

At Acland, near Oakey on the Darling Downs, an open cut coal mine started ten years ago. Since then over 50 towns people and 60 family operated farms have been



Can Rural Vet Practice Survive Mining? ... continued

bought out by the mine and district production has declined. These were farms involved in high value beef, cropping, pigs, poultry, dairying and horse breeding. Family farms have working dogs and companion animals: all requiring veterinarians and their services.

Business activity within Oakey has suffered; the sale yards, grain depot and private abattoir closed. Manufacturing and retail business has dropped, particularly in agricultural related industries. The number of vets working in the district has also declined. Economic studies suggest more jobs may have been lost from Oakey than created by the local coal mine. Closing a farm is the equivalent of shutting down a small to medium sized business, with many upstream and downstream impacts resulting from these closures.

Small towns in mining regions suffer from social dislocation and economic loss created by fly in fly out (FIFO) work forces. CSG infrastructure and new mega coal mines especially use a FIFO workforce. These workers do not join local sports clubs, nor spend most income locally, their children don't attend local schools nor do they bring companion animals with them. Large industrial operations use services and suppliers contracted from outside the region so often few local benefits are seen. Towns lose population and the myriad associated services in education, health, finance and transport. Less population means fewer veterinary patients.

In the Hunter Valley thoroughbred studs, dairies, pastoral activities and cropping are currently affected by coal dust and will be threatened by CSG in the



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future. Dairy farms have closed and been sold to mining companies because it is impossible to keep the coal dust out of the milk vats. Vineyards struggle with coal dust on their vines and in their wineries.

State Governments toy with us by bringing in 'Strategic cropping land' legislation. They say that intensive cropping and CSG can co-exist. The Senate Inquiry's findings disagree (4). How can GPS controlled ploughing rigs manage roads and pipelines criss-crossing a paddock? How do farmers remediate for spills and leaks? How does 'trucking in water for emergency water losses' solve long term losses of ground water for stock or cropping? How can farmers withstand the potential doubling of wells on their properties, to 500 metres or less apart?

End the silence

Vets in many regions are becoming vocal, speaking out in defence of their communities and agricultural lifestyles. Our communities need independent scientists and informed professionals who can question the validity of information that mining companies disseminate; people who are not intimidated by miners' demands and scare tactics. Our profession needs to stand up and help our neighbours and ourselves. Losing farmland at 1% per year is concern enough, but when compounded by climate change and further drought, will it result in rural vets becoming another endangered species?

Please join us and local community groups in speaking out. Our collective silence needs to become a deafening roar of concern.

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